

EXHIBIT 2


Exhibit A - U.S. Patent No. 8,589,541 (“’541 Patent”)

Accused Instrumentalities: smartphones, basic phones, tablets, laptops, and hotspot devices sold (including those sold in bundles with data plans) or used by AT&T and all versions and variations thereof (“Accused Instrumentalities”) since the issuance of U.S. Pat. No. 8,589,541 (the “Asserted Patent”).

Claim 1

Claim	Public Documentation
[1a] A non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to:	<p>The Accused Instrumentalities include “A non-transitory computer-readable storage medium storing machine-executable instructions that, when executed by one or more processors of a wireless end-user device, cause the one or more processors to.”</p> <p>For example, AT&T sells and uses devices described by AT&T’s website below (e.g., devices made by Samsung, Apple, Motorola, Microsoft, and Google). These devices constitute a wireless end-user device as described in claim 1. <i>See, e.g.:</i> https://www.att.com/buy/phones/:</p>

NEW! \$0 with trade-in.



Apple

★ 4.2 | 1K

iPhone 15

As low as

\$0.00/mo. ~~-\$23.06/mo.~~

with eligible trade-in


Req's elig. unlimited & trade-in. Price after 36 mo. credits. Speed restr's & other terms apply. Req's 0% APR 36-mo. agmt and svc. Well-qual. customers.

[See offer details](#)

☐ Compare

[See device offers >](#)

NEW! Save up to \$830.



Apple

★ 4.4 | 710

iPhone 15 Plus

As low as

\$2.78/mo. ~~-\$25.84/mo.~~

with eligible trade-in


Req's elig. unlimited & trade-in. Price after 36 mo. credits. Speed restr's & other terms apply. Req's 0% APR 36-mo. agmt and svc. Well-qual. customers.

[See offer details](#)

☐ Compare

[See device offers >](#)

No trade-in required



Apple

★ 4.3 | 884

iPhone 14 Pro

As low as

\$15.00/mo. ~~-\$25.00/mo.~~


Req's. elig. unlimited svc (speed restr's apply). Price after credits over 36 mo. Other terms apply. Req's 0% APR 36-mo. agmt and svc. Well-qual. customers.

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☐ Compare

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No trade-in required



Apple

★ 4.2 | 1K

iPhone 14 Pro Max

As low as


\$20.00/mo. ~~-\$27.78/mo.~~

Req's. elig. unlimited svc (speed restr's apply). Price after credits over 36 mo. Other terms apply. Req's 0% APR 36-mo. agmt and svc. Well-qual. customers.

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Bring your own device


Get \$250 in bill credits

Gift yourself a little something extra when you switch to AT&T and bring your own phone.

Online only. Ltd. time. Requires port-in of new line & elig. service. Other terms apply. [See offer details](#)

[Bring my device](#)

Get this phone FREE



Samsung

★ 4.7 | 3K

Galaxy S23+

As low as

\$0.00/mo. ~~-\$27.78/mo.~~

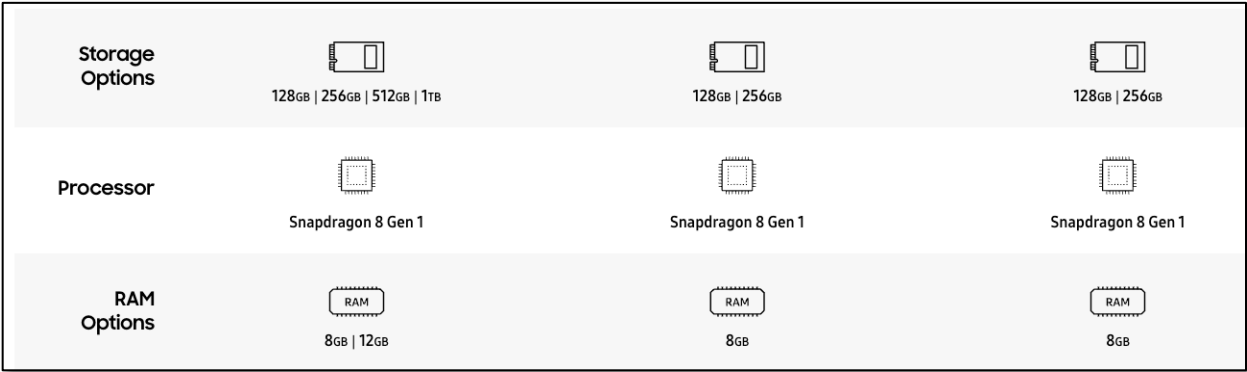
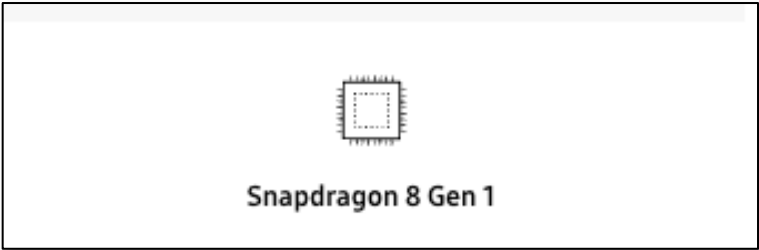
with eligible trade-in

Req's elig. unlimited & trade-in. Price after 36 mo. credits. Speed restr's & other terms apply. Req's 0% APR 36-mo. agmt and svc. Well-qual. customers.

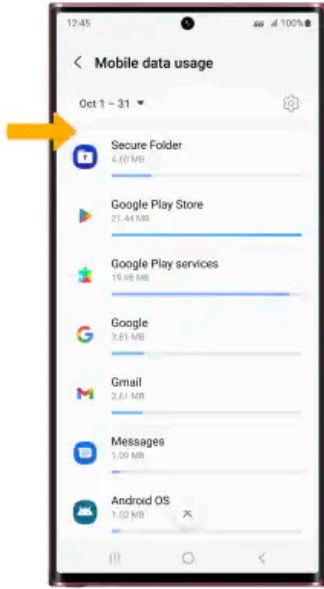
[See offer details](#)

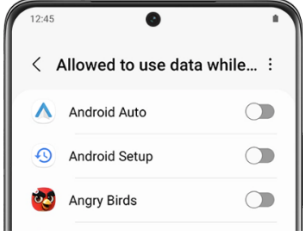
☐ Compare

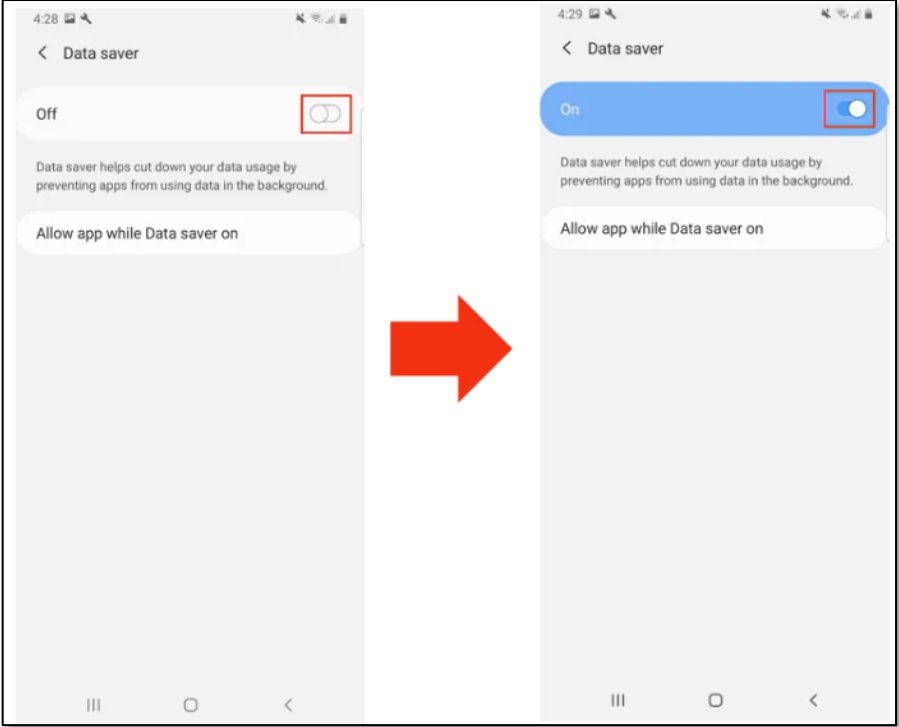
[See device offers >](#)

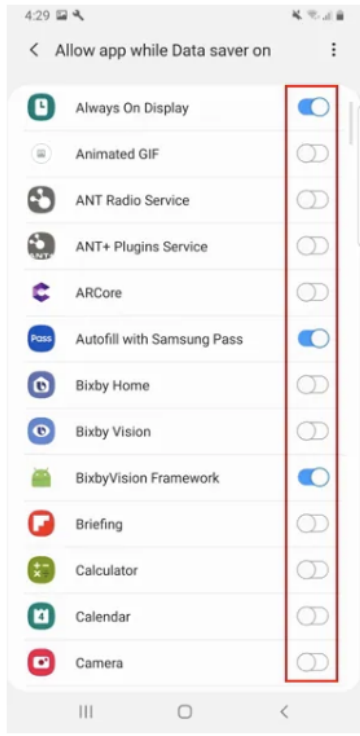
Claim	Public Documentation
	<p>See also https://www.att.com/buy/tablets/, https://www.att.com/buy/wearables/.</p> <p>For further example, the Samsung Galaxy S22 model is sold or used by AT&T and includes 8GB RAM and either 128GB or 256GB non-removable memory storage, in which control policies for applications are stored. See, e.g., https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-unlocked-sm-s901uzkaxaa/:</p>  <p>For further example, the Galaxy S22 has either a Snapdragon (in the United States) or Exynos (in Korea) architecture-based application processor. See, e.g., https://www.samsung.com/us/smartphones/galaxy-s22/buy/galaxy-s22-128gb-unlocked-sm-s901uzkaxaa/:</p>  <p>For further example, the Apple iPhone 15 Pro model is sold or used by AT&T and includes 128GB, 256GB, 512GB, or 1TB of memory storage, in which control policies for applications are stored. See, e.g., https://www.apple.com/iphone-15-pro/specs/:</p>

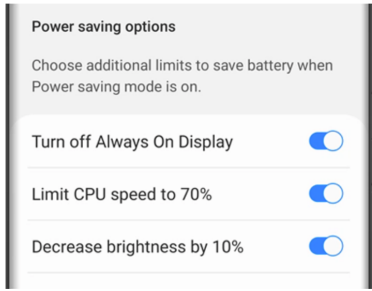
Claim	Public Documentation								
	<div> <p>Capacity¹</p> <table> <tr> <td>128GB</td> <td>256GB</td> </tr> <tr> <td>256GB</td> <td>512GB</td> </tr> <tr> <td>512GB</td> <td>1TB</td> </tr> <tr> <td>1TB</td> <td></td> </tr> </table> </div> <p>For further example, the Apple iPhone 15 Pro model has a A17 Pro Chip. <i>See, e.g.,</i> https://www.apple.com/iphone-15-pro/specs/</p> <div> <p>Chip</p> <div> <p>A17 PRO</p> </div> <ul style="list-style-type: none"> A17 Pro chip New 6-core CPU with 2 performance and 4 efficiency cores New 6-core GPU New 16-core Neural Engine </div>	128GB	256GB	256GB	512GB	512GB	1TB	1TB	
128GB	256GB								
256GB	512GB								
512GB	1TB								
1TB									
<p>[1b] identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network;</p>	<p>The Accused Instrumentalities “identify a service usage activity of the wireless end-user device, the service usage activity being associated with a first software component of a plurality of software components on the wireless end-user device, the service usage activity comprising one or more prospective or successful communications over a wireless network.”</p> <p>For example, Samsung’s “Data Saver,” or “Power Saver,” “Doze Mode,” “App Standby,” “Adaptive Battery,” and/or “JobScheduler” features apply to at least some service usage activities associated with a software component comprising prospective or successful communications over a wireless network. <i>See, e.g.,</i> https://www.att.com/device-support/article/wireless/KM1476382/Samsung/SamsungSMS908U:</p>								


Claim	Public Documentation
	<h3>View data usage by app</h3> <p>From the Mobile data usage screen, scroll to view data usage broken down by application.</p> <p><i>Note: To restrict apps from using data while running in the background, swipe down from the Notification bar, then select the Settings icon > Connections > Data usage > Data saver > Data saver switch. Your myAT&T account is also another way to manage your wireless usage.</i></p>  <p>; https://www.samsung.com/us/support/answer/ANS00079018/:</p>

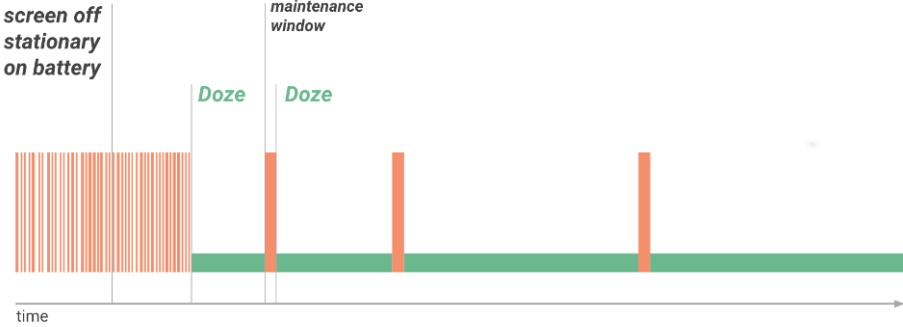
Claim	Public Documentation
	<div><p>Turn Data saver on or off ✓</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/ae/support/mobile-devices/android-pie-what-is-the-data-saver-feature/;</p>

Claim	Public Documentation
	

Claim	Public Documentation
	<p>6 Toggle the switches on next to the apps that you need to receive notifications from all the time. Email, Messages, Messenger, Instagram and Facebook are all popular options to allow unrestricted data access..</p>  <p>; https://www.att.com/device-support/article/wireless/KM1477445/Samsung/SamsungSMS908U/; https://www.samsung.com/us/support/answer/ANS00078987/:</p>

Claim	Public Documentation
	<div> <h3>Power saving mode ✓</h3> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with the instruction 'Choose additional limits to save battery when Power saving mode is on.' Below this are three toggle switches, all of which are turned on: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/basics/network-ops/data-saver:</p> <div> <h3>Optimize network data usage 🔖</h3> <p>Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.</p> <p>When a user enables Data Saver in Settings and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.</p> <p>Android 7.0 (API level 24) extends the <code>ConnectivityManager</code> API to provide apps with a way to retrieve the user's Data Saver preferences and monitor preference changes. It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.</p> </div>

Claim	Public Documentation
	<div><h3>Check data saver preferences</h3><p>On Android 7.0 (API level 24) and higher, apps can use the <code>ConnectivityManager</code> API to determine what data usage restrictions are being applied. The <code>getRestrictBackgroundStatus()</code> method returns one of the following values:</p><p><code>RESTRICT_BACKGROUND_STATUS_DISABLED</code></p><p>Data Saver is disabled.</p><p><code>RESTRICT_BACKGROUND_STATUS_ENABLED</code></p><p>The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.</p><p><code>RESTRICT_BACKGROUND_STATUS_WHITELISTED</code></p><p>The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.</p><p>Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses <code>ConnectivityManager.isActiveNetworkMetered()</code> and <code>ConnectivityManager.getRestrictBackgroundStatus()</code> to determine how much data the app should use:</p></div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby:</p> <div><h2>Optimize for Doze and App Standby </h2><p>Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. <i>Doze</i> reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. <i>App Standby</i> defers background network activity for apps with which the user has not recently interacted.</p><p>While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in Power Management Restrictions.</p><p>Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.</p></div>

Claim	Public Documentation
	<div> <h3>Understanding Doze</h3> <p>If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.</p> <p>Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this <i>maintenance window</i>, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.</p>  <p>Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.</p> </div> <div> <p>At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.</p> <p>As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.</p> </div> <div> <p>The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as tickles or notifications. If your app requires a persistent connection to the network to receive messages, you should use Firebase Cloud Messaging (FCM) if possible.</p> </div> <p>; https://developer.android.com/topic/performance/appstandby:</p>

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.



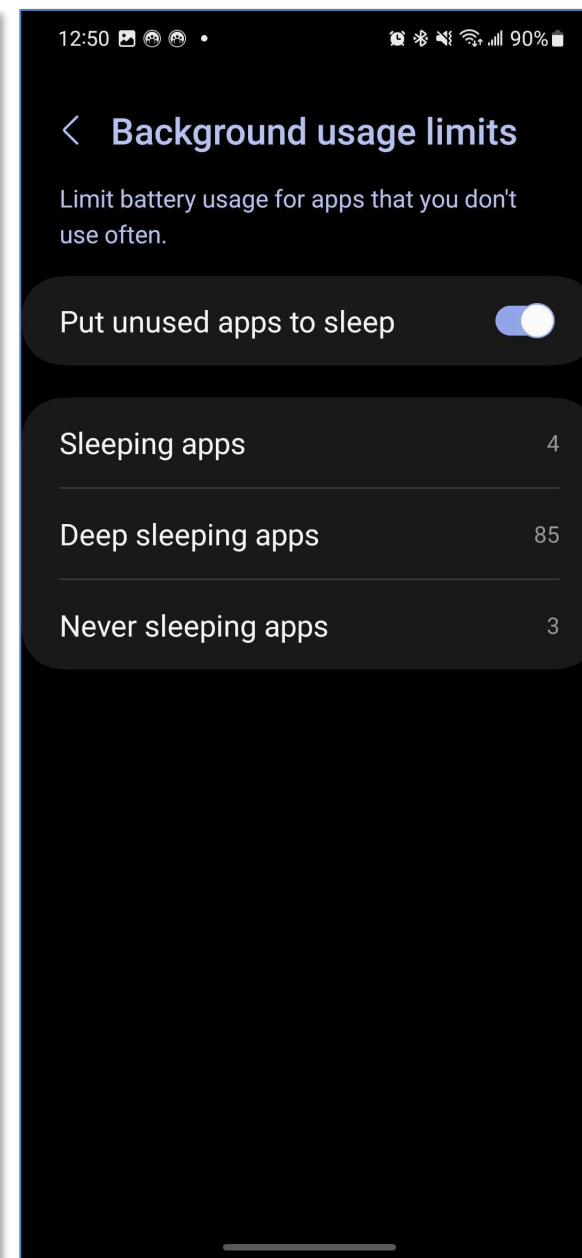
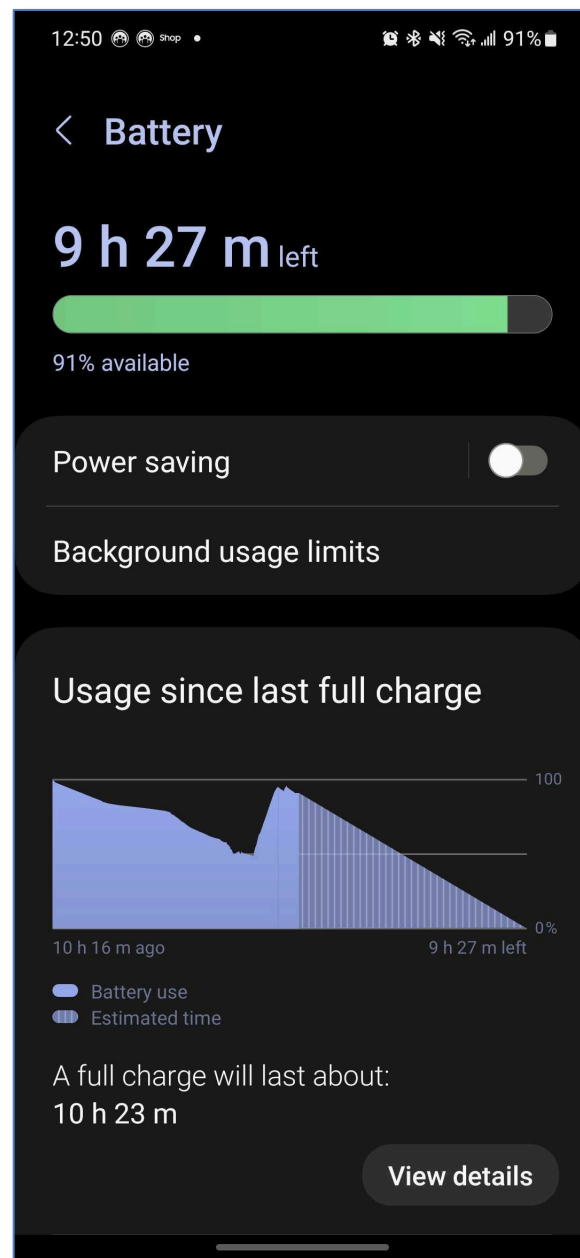
Note: Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [UsageStatsManager.getAppStandbyBucket\(\)](#).

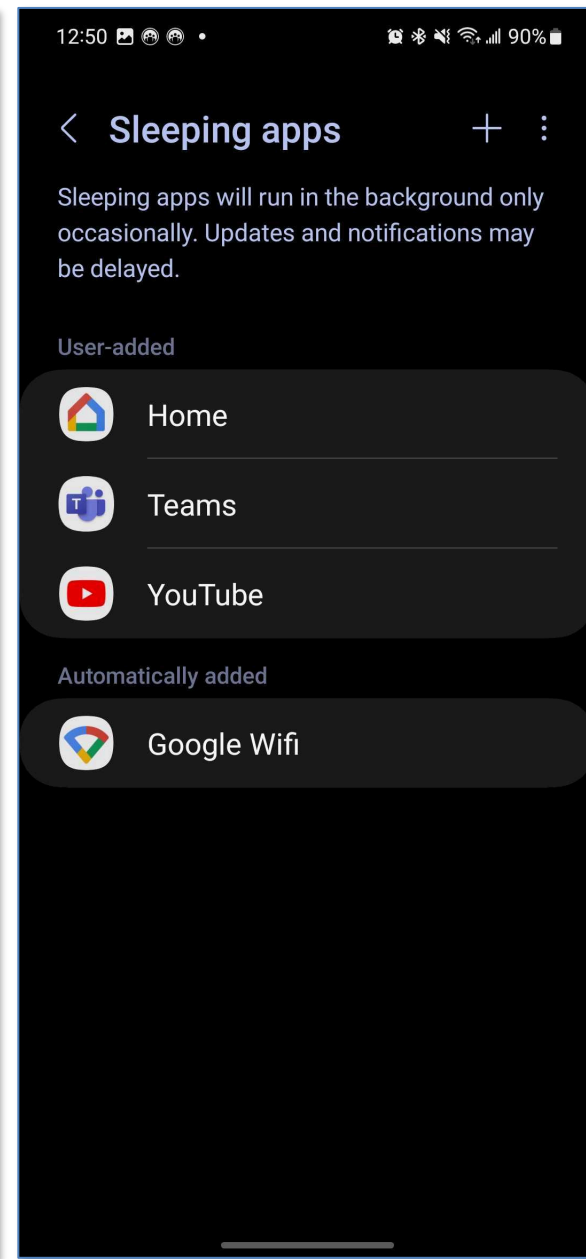
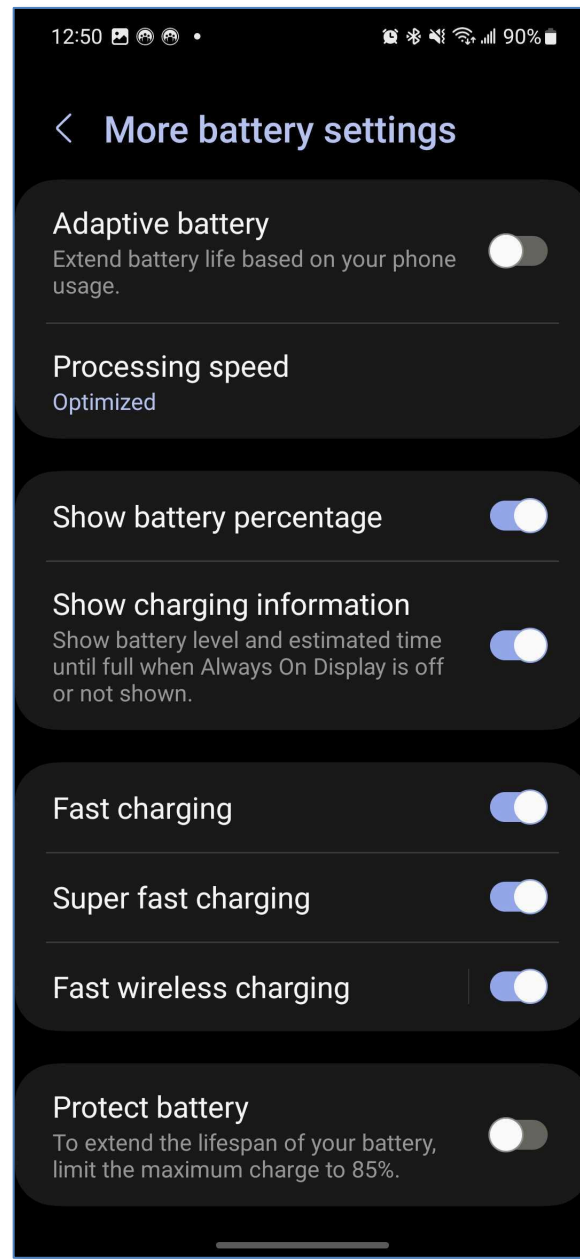
The buckets are:

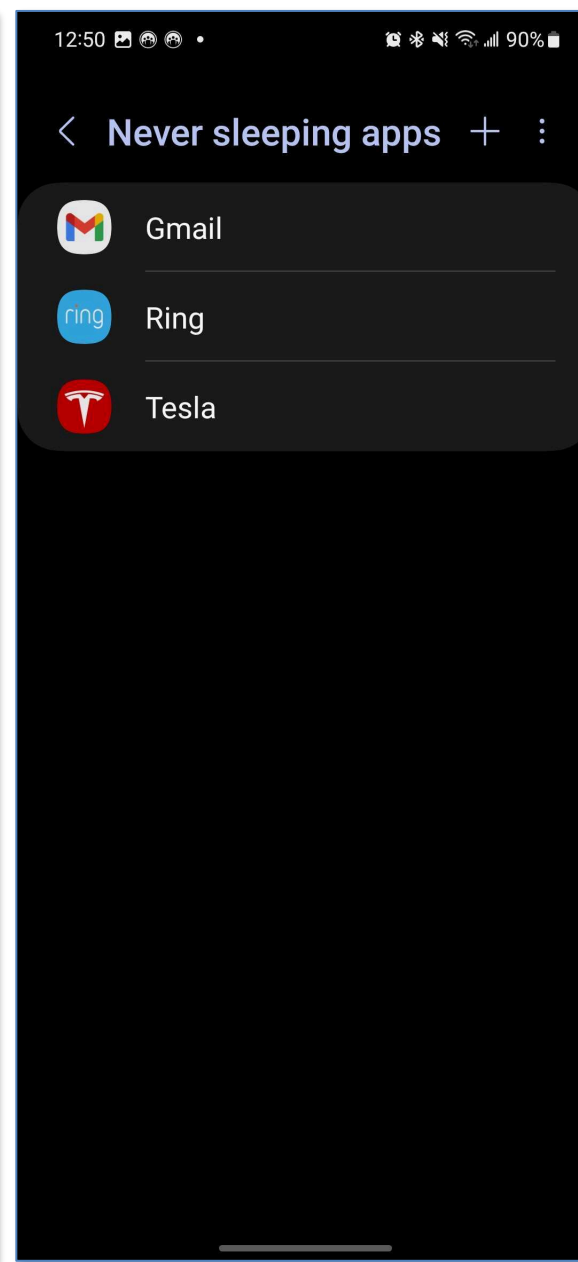
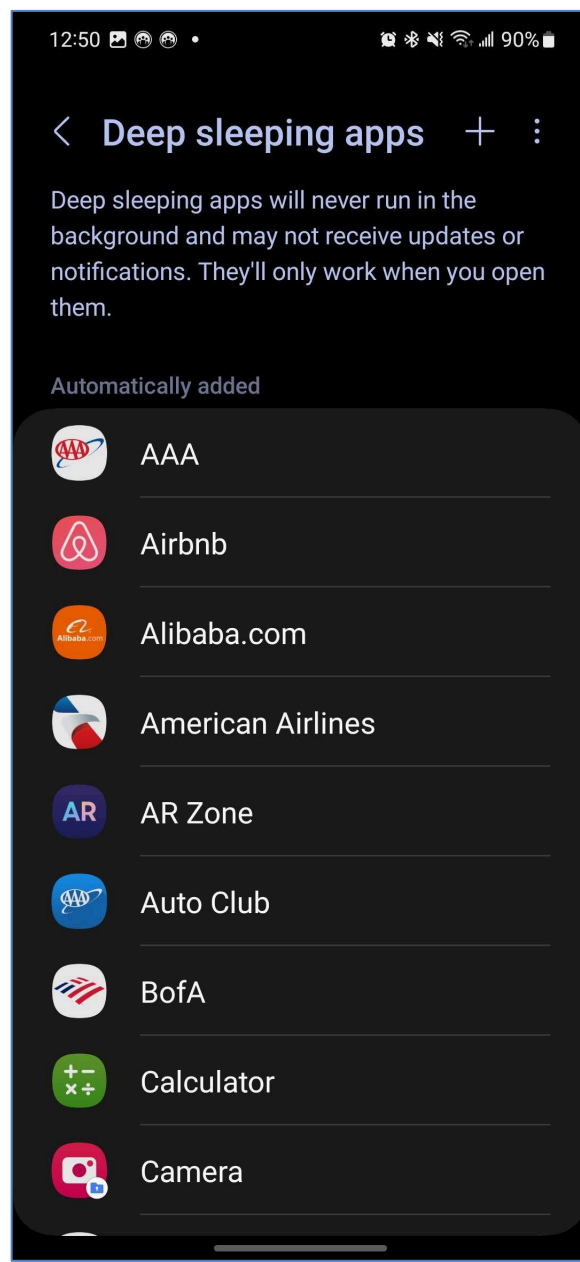
1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

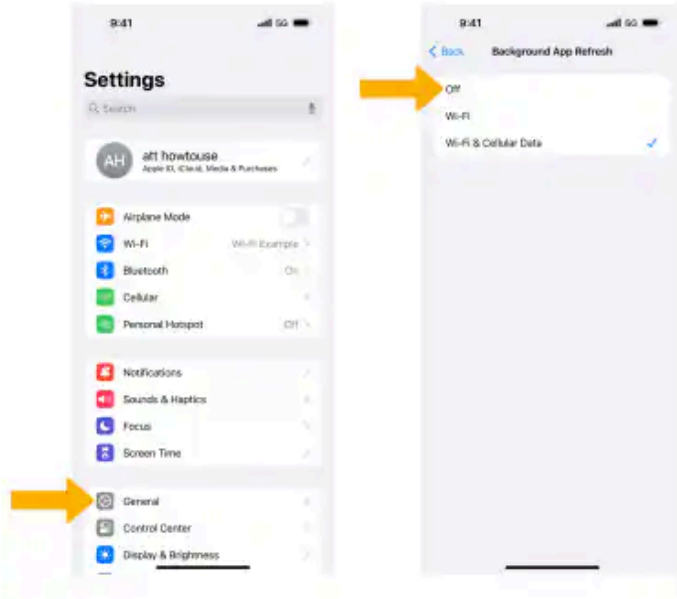
In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.



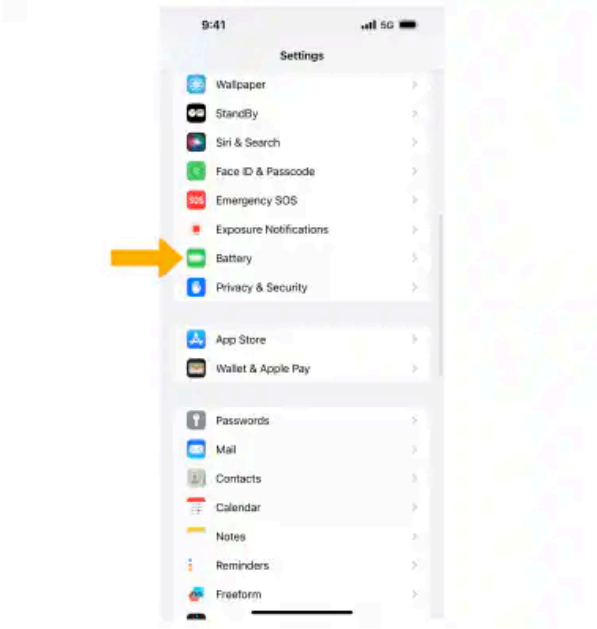
Claim	Public Documentation
	<p>; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler; https://developer.android.com/guide/background/persistent; https://developer.android.com/guide/components/services; https://developer.android.com/guide/components/activities/intro-activities; https://developer.android.com/reference/java/net/URLConnection; https://developer.android.com/training/articles/security-ssl; https://developer.android.com/reference/android/net/DnsResolver; https://developer.android.com/guide/topics/media; https://developer.android.com/media; https://developer.android.com/guide/topics/media/platform/mediaplayer; https://developer.apple.com/documentation/networkextension/dns_settings; <i>see also</i> the exemplary screenshots below:</p>

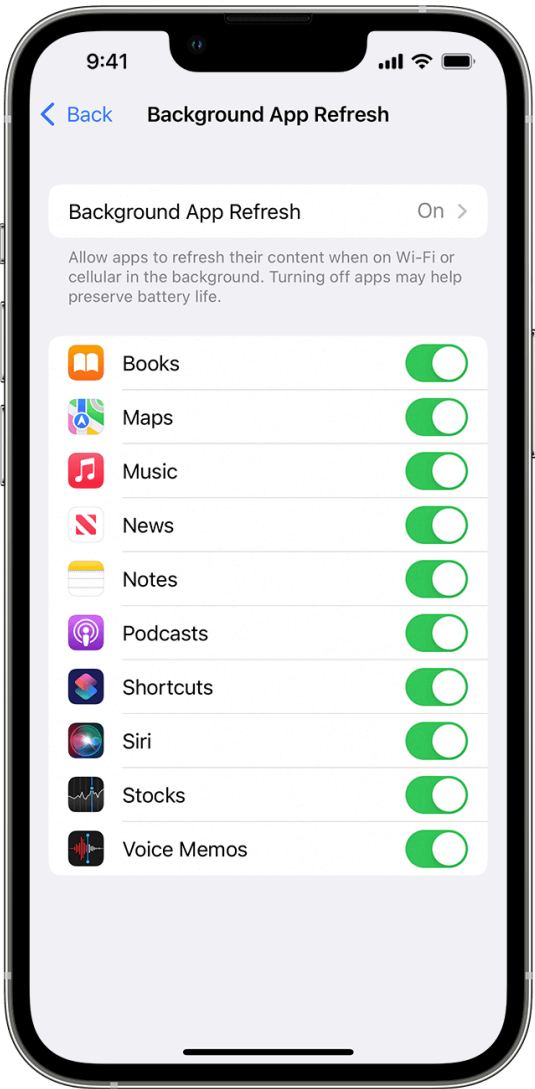






Claim	Public Documentation
	<p>As another example, at least Apple’s “Background App Refresh” and “Low Power Mode” settings apply to at least some service usage activities associated with a software component comprising prospective or successful communications over a wireless network. <i>See, e.g.,</i> https://www.att.com/device-support/article/wireless/000097086/Apple/iPhone15Pro/:</p> <p>TURN OFF BACKGROUND APP REFRESH: From the Settings screen, select General > Background App Refresh > Off.</p> 

Claim	Public Documentation
	<p>Enable Low Power Mode</p> <p>1. From the home screen, select the  Settings app.</p> <p><i>Note: iPhone automatically prompts you to turn on Low Power mode when you have 20% battery life remaining.</i></p> <p>2. Scroll to and select Battery. Select the  Low Power Mode switch to place it in the On position.</p> <p><i>Note: When Low Power mode is on, the Battery icon turns yellow and the battery percentage is displayed in the status bar. Fetch, background app refresh, automatic downloads, and some visual effects are reduced or turned off. You can view your app usage for the Last 24 Hours or the Last 5 Days. Select the desired option to view.</i></p> <div>A screenshot of an iPhone's Settings app. The 'Settings' title is at the top. A list of settings categories is shown, including Wallpaper, StandBy, Siri & Search, Face ID & Passcode, Emergency SOS, Exposure Notifications, Battery, Privacy & Security, App Store, Wallet & Apple Pay, Passwords, Mail, Contacts, Calendar, Notes, Reminders, and Freeform. A yellow arrow points to the 'Battery' option in the list. The status bar at the top shows the time as 9:41 and 5G signal.</div> <p>; https://support.apple.com/en-us/HT202070:</p>

Claim	Public Documentation
	<div><h2>Use Background App Refresh</h2></div> <div><p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p></div> <div><p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p></div> <div><p>; https://support.apple.com/en-us/HT205234:</p></div> <div></div>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:


- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.

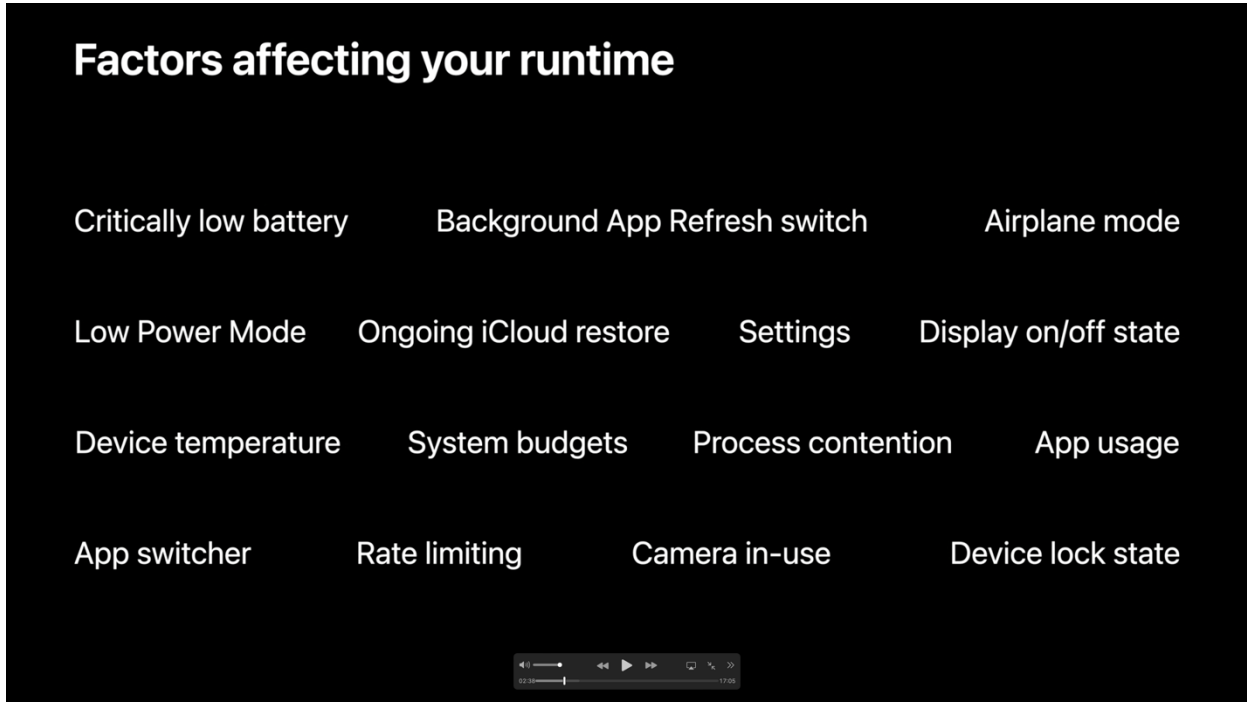










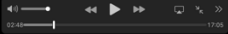
1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

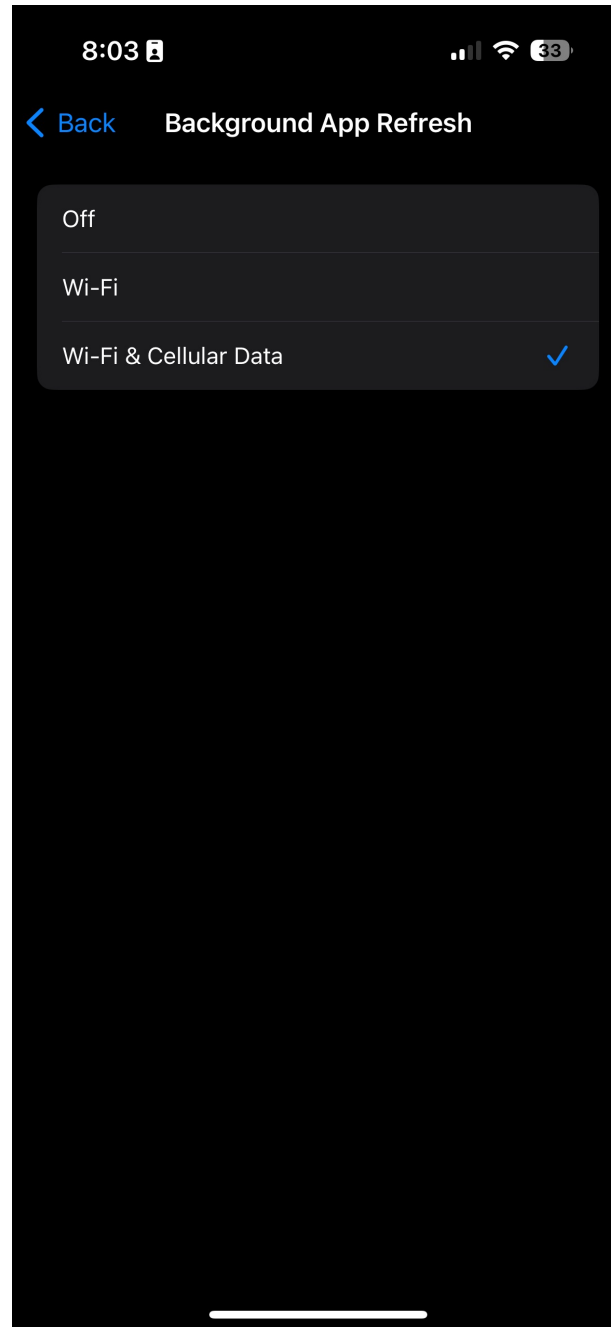
2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.


Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/; https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/prepar-</p>

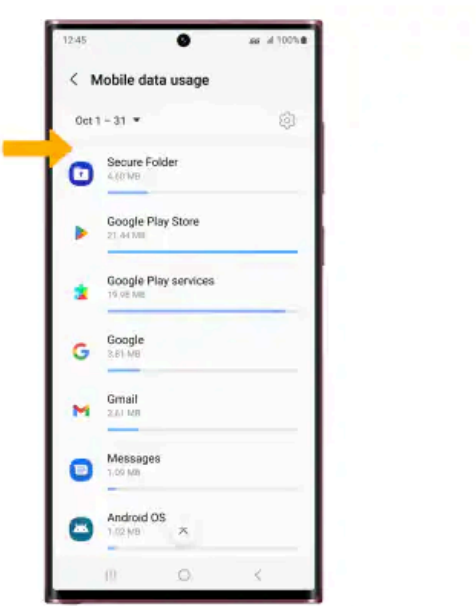
Claim	Public Documentation
	<p> ing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks/bgapprefreshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum/; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus/; https://developer.apple.com/documentation/uikit/uiapplication/1623003-applicationstate; https://developer.apple.com/documentation/uikit/uiapplication/state; https://developer.apple.com/documentation/foundation/url_loading_system; https://developer.apple.com/documentation/foundation/urlsession; https://developer.apple.com/documentation/devicemanagement/mail; https://developer.apple.com/documentation/security/secure_transport/using_the_secure_socket_layer_for_network_communication; https://developer.apple.com/documentation/networkextension/personal_vpn; https://developer.apple.com/documentation/foundation/nsproxy; https://developer.apple.com/documentation/messages; https://developer.apple.com/documentation/avfoundation/avplayer; https://developer.apple.com/documentation/avfoundation/media_playback/configuring_your_app_for_media_playback/; https://developer.apple.com/videos/play/wwdc2019/707/; https://developer.apple.com/videos/play/wwdc2020/10063/; </p>

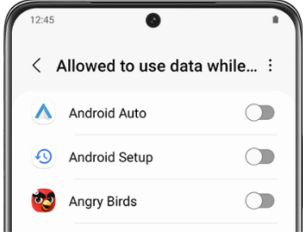
Claim	Public Documentation
	 <p>The screenshot shows a video player interface with a black background and white text. The title 'Factors affecting your runtime' is at the top. Below it, a grid of factors is displayed:</p> <ul style="list-style-type: none">Critically low batteryBackground App Refresh switchAirplane modeLow Power ModeOngoing iCloud restoreSettingsDisplay on/off stateDevice temperatureSystem budgetsProcess contentionApp usageApp switcherRate limitingCamera in-useDevice lock state <p>A video player control bar is visible at the bottom of the screenshot, showing a progress bar and a timestamp of 02:28 / 17:08.</p>

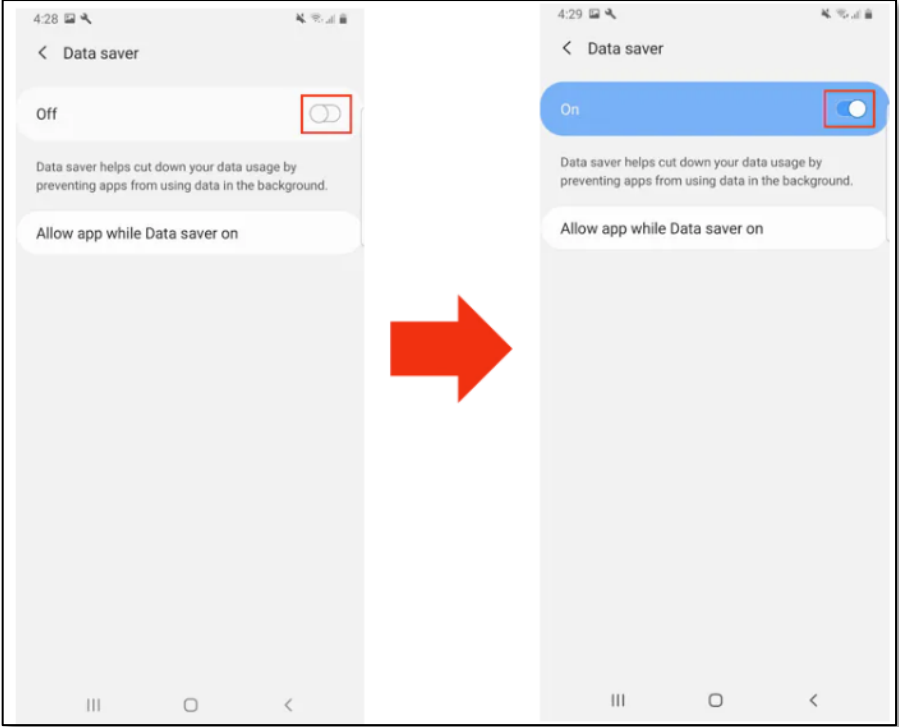
Claim	Public Documentation
	<div><h3>Top factors</h3><ul style="list-style-type: none"> Critically low battery Low Power Mode App usage App switcher Background App Refresh switch System budgets Rate limiting</div> <p>; see also exemplary screen shots below:</p>

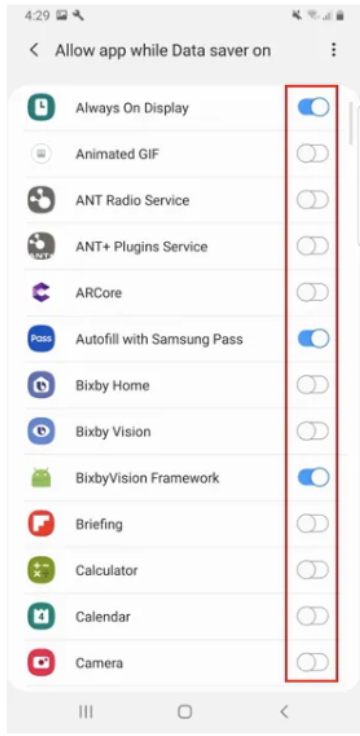


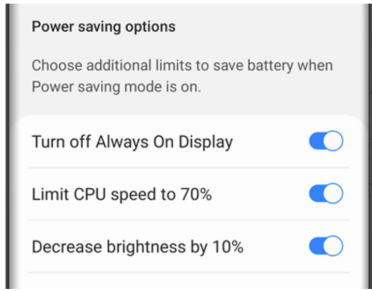
Claim	Public Documentation
	 <p>The image shows three Apple Watch screens side-by-side. The first screen is the 'Settings' menu with options for General, Do Not Disturb, and Airplane Mode. The second screen is the 'General' settings menu with options for Software Update, Orientation, Background App Refresh, and Wake Screen. The third screen is the 'Background App Refresh' settings menu, showing a toggle switch for 'Background App Refresh' which is currently turned off. Below the toggle, there is explanatory text: 'Turning off Background App Refresh may preserve battery life. Apps with complications on the current watch face will continue to refresh, even when their background app refresh setting is off.'</p> <p>See also, e.g., https://www.att.com/plans/wireless/; https://www.att.com/wireless/; https://www.att.com/pre-paid/; https://www.att.com/international/canada-roaming/; https://www.att.com/international/.</p>
<p>[1c] determine whether the service usage activity comprises a background activity;</p>	<p>The Accused Instrumentalities “determine whether the service usage activity comprises a background activity.” For example, Samsung Galaxy phones and tablets utilize Data Saver mode through which the device determines whether the service usage activity comprises background or foreground activity. See, e.g., https://www.att.com/device-support/article/wireless/KM1476382/Samsung/SamsungSMS908U:</p>


Claim	Public Documentation
	<div><h3>View data usage by app</h3></div> <div><p>From the Mobile data usage screen, scroll to view data usage broken down by application.</p></div> <div><p><i>Note: To restrict apps from using data while running in the background, swipe down from the Notification bar, then select the Settings icon > Connections > Data usage > Data saver > Data saver switch. Your myAT&T account is also another way to manage your wireless usage.</i></p></div> <div></div> <div><p>; https://www.samsung.com/us/support/answer/ANS00079018/:</p></div>

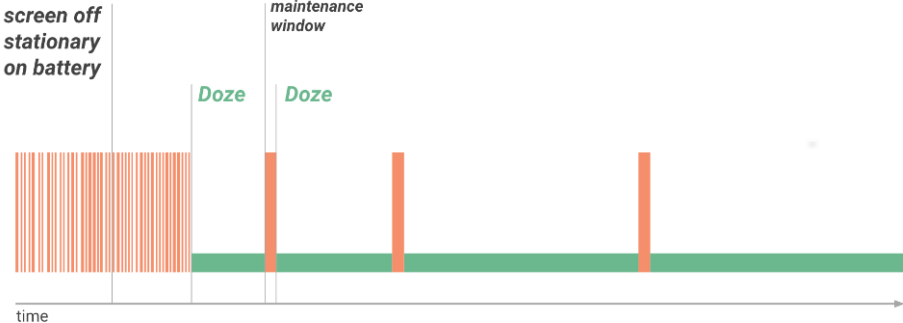
Claim	Public Documentation
	<div><p>Turn Data saver on or off ✓</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/ae/support/mobile-devices/android-pie-what-is-the-data-saver-feature/;</p>

Claim	Public Documentation
	

Claim	Public Documentation
	<p>6 Toggle the switches on next to the apps that you need to receive notifications from all the time. Email, Messages, Messenger, Instagram and Facebook are all popular options to allow unrestricted data access..</p>  <p>; https://www.att.com/device-support/article/wireless/KM1477445/Samsung/SamsungSMS908U/; https://www.samsung.com/us/support/answer/ANS00078987/:</p>

Claim	Public Documentation
	<div> <h3>Power saving mode ✓</h3> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with three toggle switches, all of which are turned on. The options are: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/basics/network-ops/data-saver:</p> <div> <h3>Optimize network data usage 🔖</h3> <p>Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.</p> <p>When a user enables Data Saver in Settings and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.</p> <p>Android 7.0 (API level 24) extends the <code>ConnectivityManager</code> API to provide apps with a way to retrieve the user's Data Saver preferences and monitor preference changes. It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.</p> </div>

Claim	Public Documentation
	<div><h3>Check data saver preferences</h3><p>On Android 7.0 (API level 24) and higher, apps can use the <code>ConnectivityManager</code> API to determine what data usage restrictions are being applied. The <code>getRestrictBackgroundStatus()</code> method returns one of the following values:</p><p><code>RESTRICT_BACKGROUND_STATUS_DISABLED</code></p><p>Data Saver is disabled.</p><p><code>RESTRICT_BACKGROUND_STATUS_ENABLED</code></p><p>The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.</p><p><code>RESTRICT_BACKGROUND_STATUS_WHITELISTED</code></p><p>The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.</p><p>Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses <code>ConnectivityManager.isActiveNetworkMetered()</code> and <code>ConnectivityManager.getRestrictBackgroundStatus()</code> to determine how much data the app should use:</p></div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby;</p> <div><h2>Optimize for Doze and App Standby </h2><p>Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. <i>Doze</i> reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. <i>App Standby</i> defers background network activity for apps with which the user has not recently interacted.</p><p>While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in Power Management Restrictions.</p><p>Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.</p></div>

Claim	Public Documentation
	<div> <h3>Understanding Doze</h3> <p>If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.</p> <p>Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this <i>maintenance window</i>, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.</p>  <p>Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.</p> </div> <div> <p>At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.</p> <p>As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.</p> </div> <div> <p>The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as tickles or notifications. If your app requires a persistent connection to the network to receive messages, you should use Firebase Cloud Messaging (FCM) if possible.</p> </div> <p>; https://developer.android.com/topic/performance/appstandby:</p>

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.



Note: Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [UsageStatsManager.getAppStandbyBucket\(\)](#).

The buckets are:

1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

Claim	Public Documentation
	<p> https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler; https://developer.android.com/guide/background/persistent; https://developer.android.com/guide/components/activities/activity-lifecycle; https://developer.android.com/guide/components/activities/process-lifecycle; </p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>1. A foreground process is one that is required for what the user is currently doing. Various application components can cause its containing process to be considered foreground in different ways. A process is considered to be in the foreground if any of the following conditions hold:</p> <ul style="list-style-type: none"> • It is running an Activity at the top of the screen that the user is interacting with (its onResume() method has been called). • It has a BroadcastReceiver that is currently running (its BroadcastReceiver.onReceive() method is executing). • It has a Service that is currently executing code in one of its callbacks (Service.onCreate(), Service.onStart(), or Service.onDestroy()). <p>There will only ever be a few such processes in the system, and these will only be killed as a last resort if memory is so low that not even these processes can continue to run. Generally, at this point, the device has reached a memory paging state, so this action is required in order to keep the user interface responsive.</p> </div> <p> https://developer.android.com/guide/background; </p>

Claim	Public Documentation
	<div>Definition of background work<p>An app is running in the <i>background</i> when both the following conditions are satisfied:</p><ul style="list-style-type: none">• None of the app's activities are currently visible to the user.• The app isn't running any foreground services that started while an activity from the app was visible to the user.<p>Otherwise, the app is running in the <i>foreground</i>.</p></div> <p>; https://developer.android.com/guide/components/services;</p>

Types of Services

These are the three different types of services:

Foreground

A foreground service performs some operation that is noticeable to the user. For example, an audio app would use a foreground service to play an audio track. Foreground services must display a [Notification](#). Foreground services continue running even when the user isn't interacting with the app.

When you use a foreground service, you must display a notification so that users are actively aware that the service is running. This notification cannot be dismissed unless the service is either stopped or removed from the foreground.

Learn more about how to configure [foreground services](#) in your app.

★ **Note:** The [WorkManager](#) API offers a flexible way of scheduling tasks, and is able to [run these jobs as foreground services](#) if needed. In many cases, using WorkManager is preferable to using foreground services directly.

Background

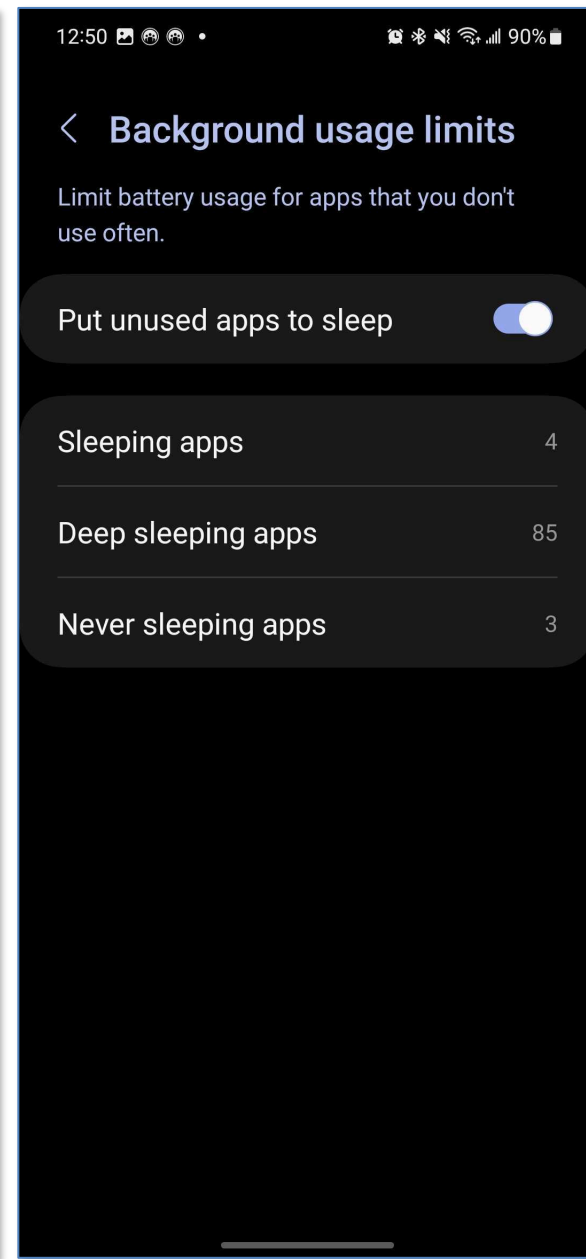
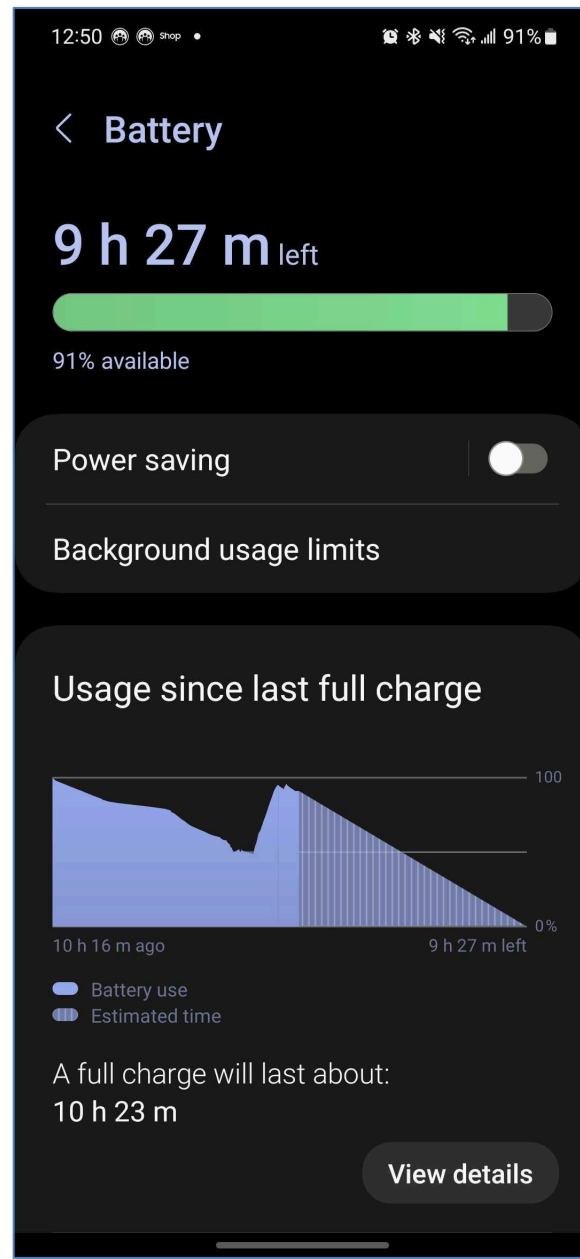
A background service performs an operation that isn't directly noticed by the user. For example, if an app used a service to compact its storage, that would usually be a background service.

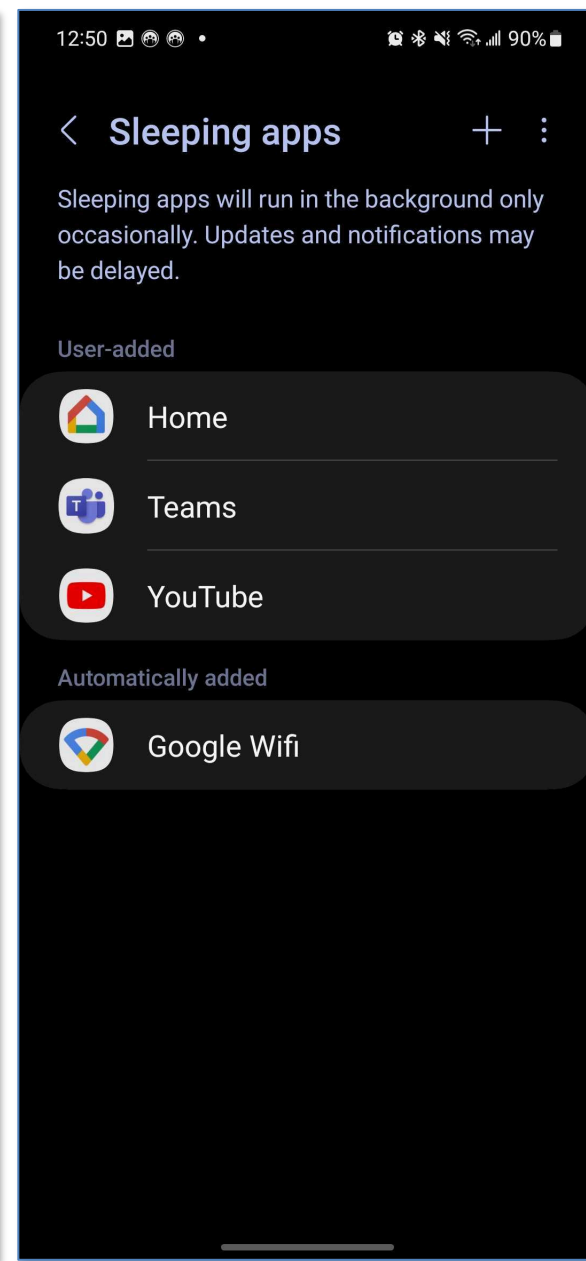
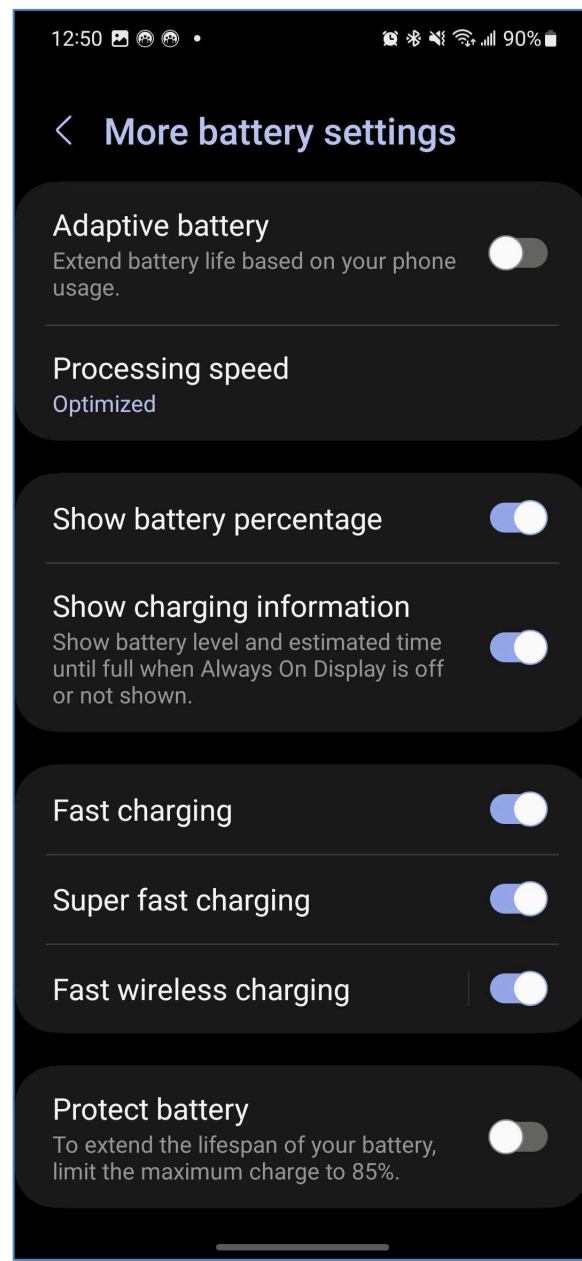
★ **Note:** If your app targets API level 26 or higher, the system imposes [restrictions on running background services](#) when the app itself isn't in the foreground. In most situations, for example, you shouldn't [access location information from the background](#). Instead, [schedule tasks using WorkManager](#).

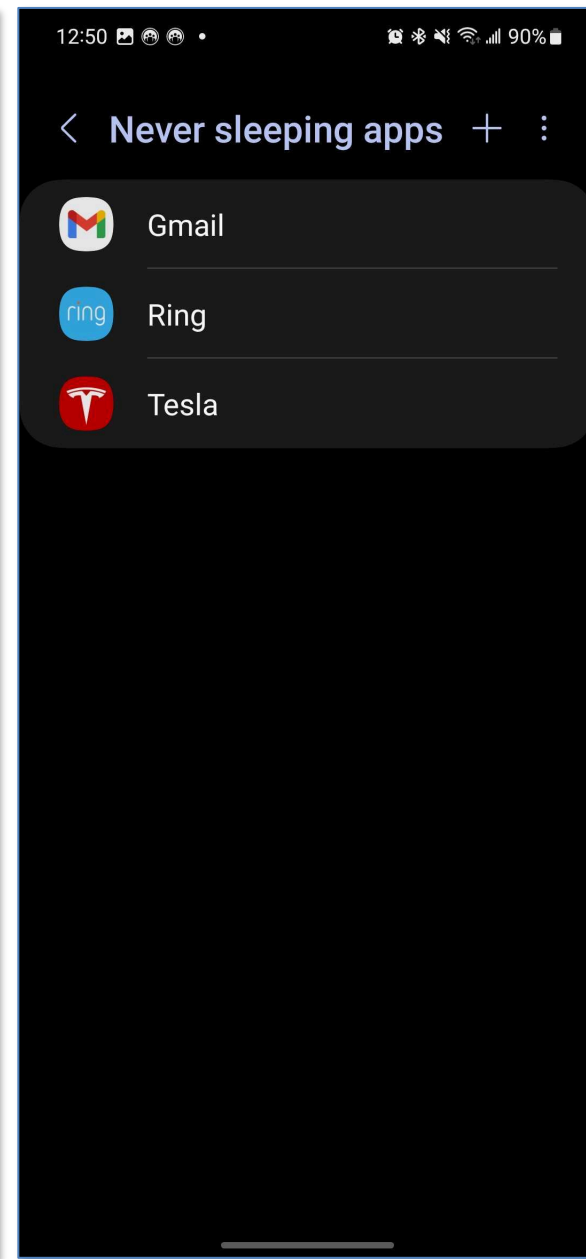
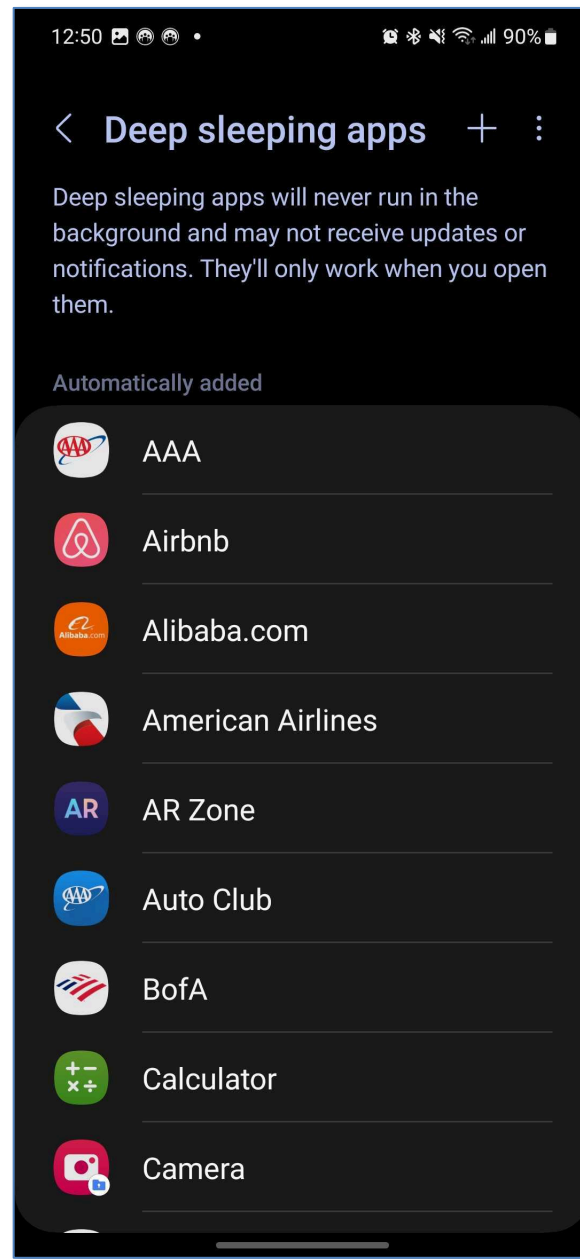
Bound

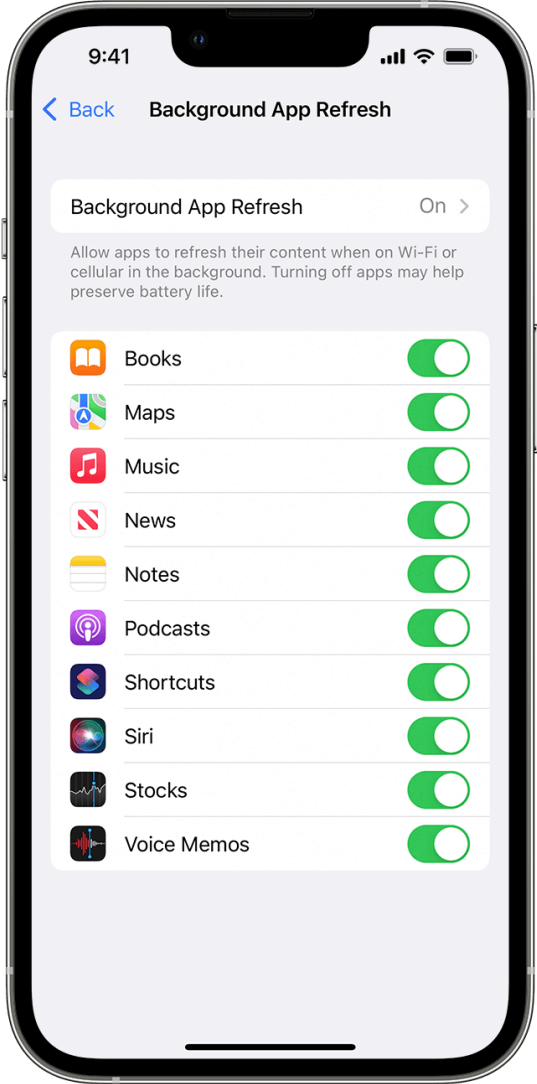
A service is *bound* when an application component binds to it by calling `bindService()`. A bound service offers a client-server interface that allows components to interact with the service, send requests, receive results, and even do so across processes with interprocess communication (IPC). A bound service runs only as long as another application component is bound to it. Multiple components can bind to the service at once, but when all of them unbind, the service is destroyed.

Claim	Public Documentation
	; https://developer.android.com/guide/components/activities/intro-activities ; <i>see also</i> the exemplary screen-shots below:







Claim	Public Documentation
	<p><i>See also, e.g.,</i> https://support.apple.com/en-us/HT202070:</p> <h2>Use Background App Refresh</h2> <p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p> <p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p> 

Claim	Public Documentation
	https://support.apple.com/en-us/HT205234 :

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

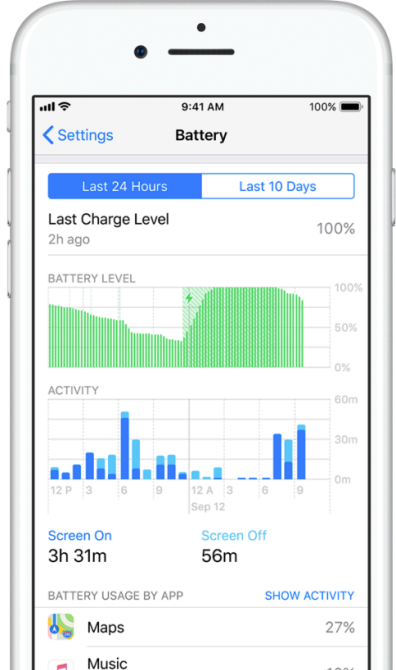
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.

1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

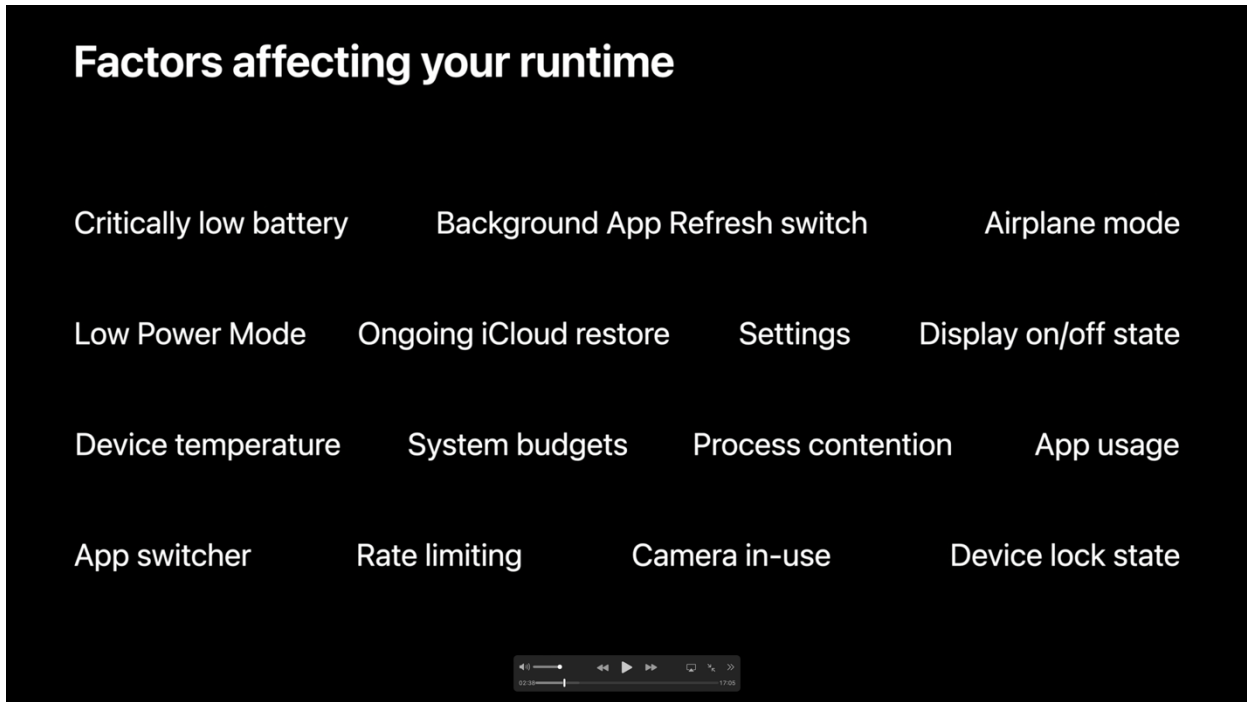
2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.













Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none">• To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely.• If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/uiapplication/1623003-applicationstate:</p>

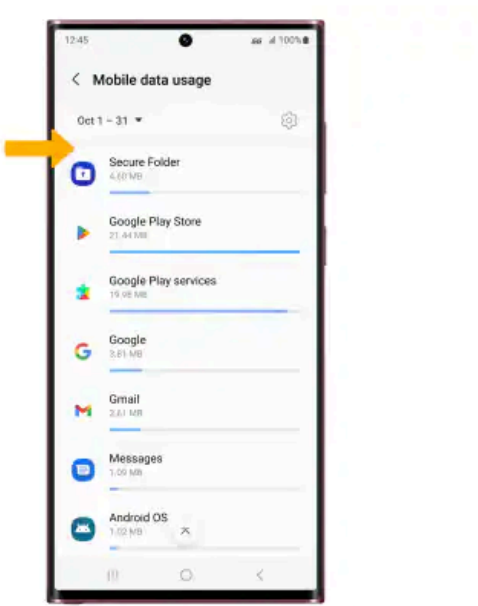
Claim	Public Documentation
	<p>Instance Property</p> <h2>applicationState</h2> <p>The app's current state, or that of its most active scene.</p> <div> iOS 4.0+ iPadOS 4.0+ Mac Catalyst 13.1+ tvOS 9.0+ visionOS 1.0+ Beta </div> <pre>var applicationState: UIApplication.State { get }</pre> <hr/> <h2>Discussion</h2> <p>The behavior of this property depends on whether your app is scene-based.</p> <p>In a scene-based app, this property takes the value of the most active scene, which it determines from each scene's activationState property. A scene-based app launches in the background state, and transitions between its states as scenes connect, change their states, and disconnect. For scene-based apps, use UISceneDelegate to respond to changes in an individual scene's life cycle.</p> <p>In a sceneless app, the property's value is always the app's current state. The app is inactive at launch, and then is generally in either an active or background state. The app may become inactive for a short period — for example, when transitioning between active and background states, when the system presents an alert in front of it, or when the system displays the application switcher. For sceneless apps, use UIApplicationDelegate to respond to the app's life cycle changes.</p> <p>; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/;</p>

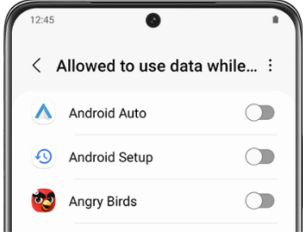
Claim	Public Documentation
	<p>https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks https://developer.apple.com/documentation/backgroundtasks/bgapprefreshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum/; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_foreground/; https://developer.apple.com/documentation/uikit/uiapplication/1623003-applicationstate; https://developer.apple.com/documentation/uikit/uiapplication/state; https://developer.apple.com/documentation/foundation/url_loading_system; https://developer.apple.com/documentation/foundation/urlsession; https://developer.apple.com/documentation/avfoundation/avplayer; https://developer.apple.com/documentation/avfoundation/media_playback/configuring_your_app_for_media_playback; https://developer.apple.com/videos/play/wwdc2019/707/; https://developer.apple.com/videos/play/wwdc2020/10063;</p>

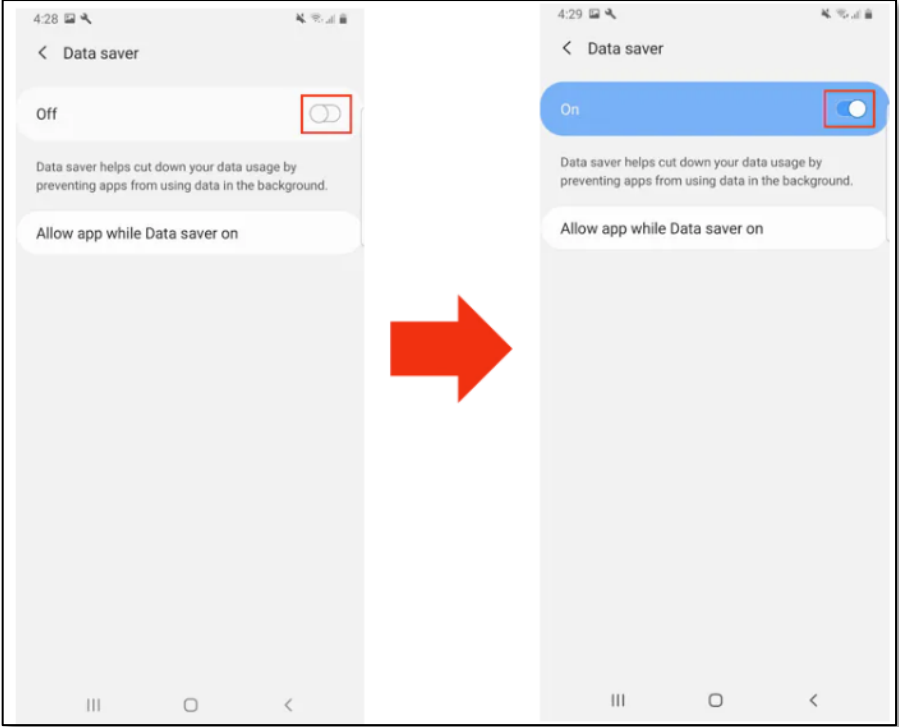
Claim	Public Documentation
	 <p>The screenshot shows a video player interface with a black background and white text. The title 'Factors affecting your runtime' is at the top. Below it, there are 12 factors arranged in a 4x3 grid:</p> <ul style="list-style-type: none">Row 1: Critically low battery, Background App Refresh switch, Airplane modeRow 2: Low Power Mode, Ongoing iCloud restore, Settings, Display on/off stateRow 3: Device temperature, System budgets, Process contention, App usageRow 4: App switcher, Rate limiting, Camera in-use, Device lock state <p>At the bottom of the video frame, there is a playback control bar showing a progress slider at approximately 32.28% and a total duration of 17:08.</p>

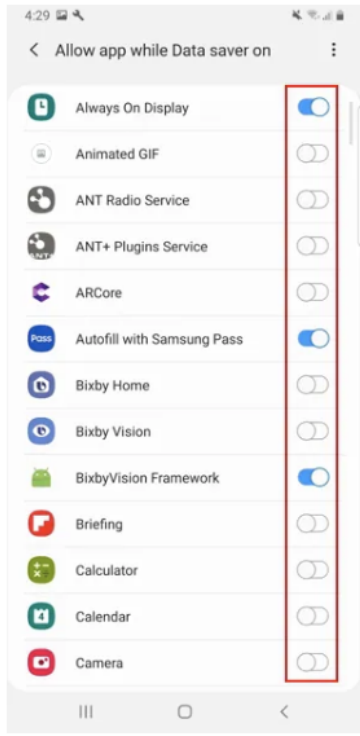
Claim	Public Documentation
	<div><h3>Top factors</h3><ul style="list-style-type: none"> Critically low battery Low Power Mode App usage App switcher Background App Refresh switch System budgets Rate limiting</div>

Claim	Public Documentation
	 <p>The image shows three sequential screenshots of an Apple Watch interface. The first screen displays the 'Settings' menu with options for 'General', 'Do Not Disturb', and 'Airplane Mode'. The second screen shows the 'General' settings menu with options for 'Software Update', 'Orientation', 'Background App Refresh', and 'Wake Screen'. The third screen shows the 'Background App Refresh' settings, where the toggle switch is turned off. Text on the screen explains that turning off this feature may preserve battery life and that apps with complications will continue to refresh even when the setting is off.</p>
<p>[1d] determine at least an aspect of a policy based on a user input obtained through a user interface of the wireless end-user device or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity;</p>	<p>The Accused Instrumentalities “determine at least an aspect of a policy based on a user input obtained through a user interface of the wireless end-user device or based on information from a network element, the policy to be applied if the service usage activity is the background activity, the policy at least for controlling the service usage activity.”</p> <p>For example, Samsung devices include an interface which allow users to specify multiple aspects of policies based on user input in various settings (e.g., enabling/disabling Data Saver, Power Saver, Adaptive Battery features, as well as enabling/disabling policies for specific applications) for controlling service usage activities, and Apple devices include an interface which allow users to specify multiple aspects of policies based on user input in various settings (e.g., enabling/disabling Background App Refresh and Low Power Mode as well as enabling/disabling policies for specific applications) controlling service usage activities. <i>See, e.g.</i>, https://www.att.com/device-support/article/wireless/KM1476382/Samsung/SamsungSMS908U:</p>

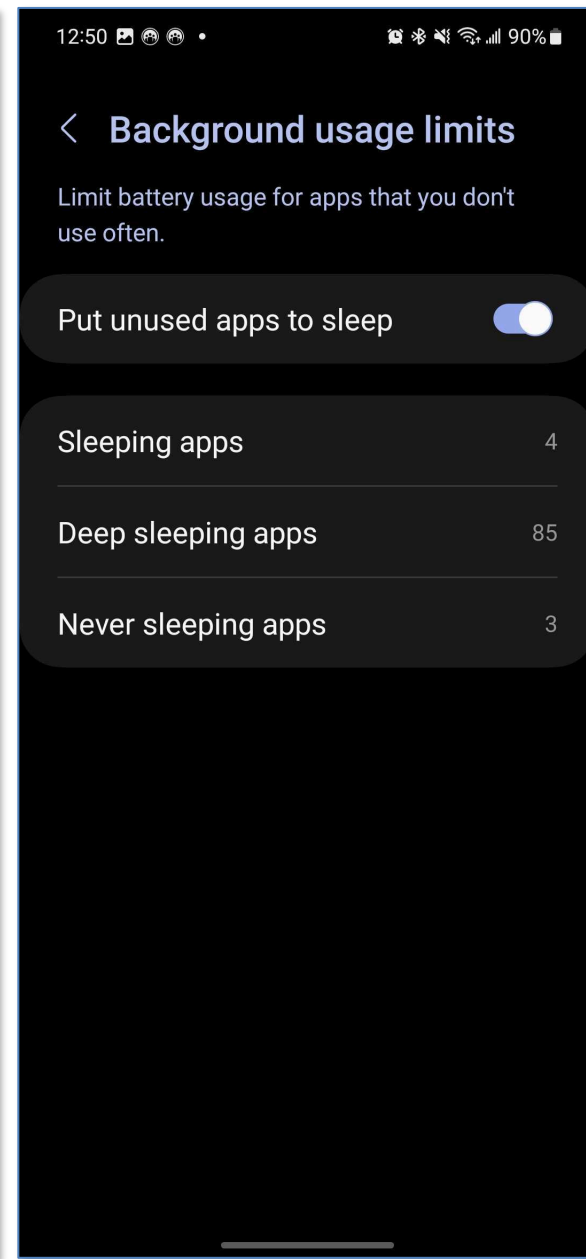
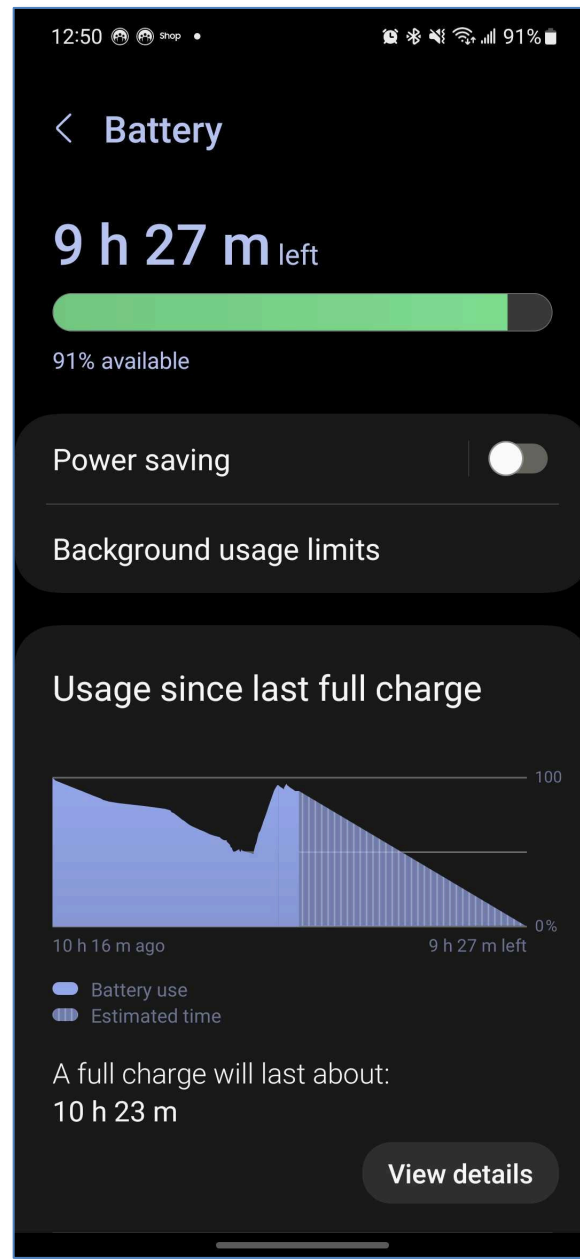
Claim	Public Documentation
	<div><h3>View data usage by app</h3></div> <div><p>From the Mobile data usage screen, scroll to view data usage broken down by application.</p></div> <div><p><i>Note: To restrict apps from using data while running in the background, swipe down from the Notification bar, then select the Settings icon > Connections > Data usage > Data saver > Data saver switch. Your myAT&T account is also another way to manage your wireless usage.</i></p></div> <div></div> <div><p>; https://www.samsung.com/us/support/answer/ANS00079018/:</p></div>

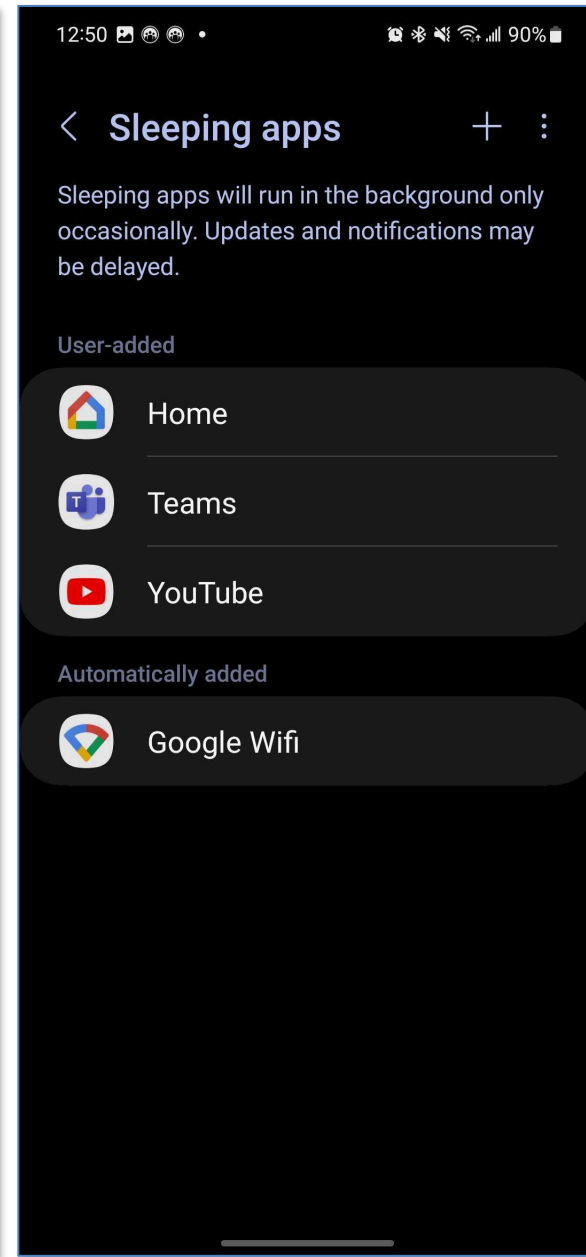
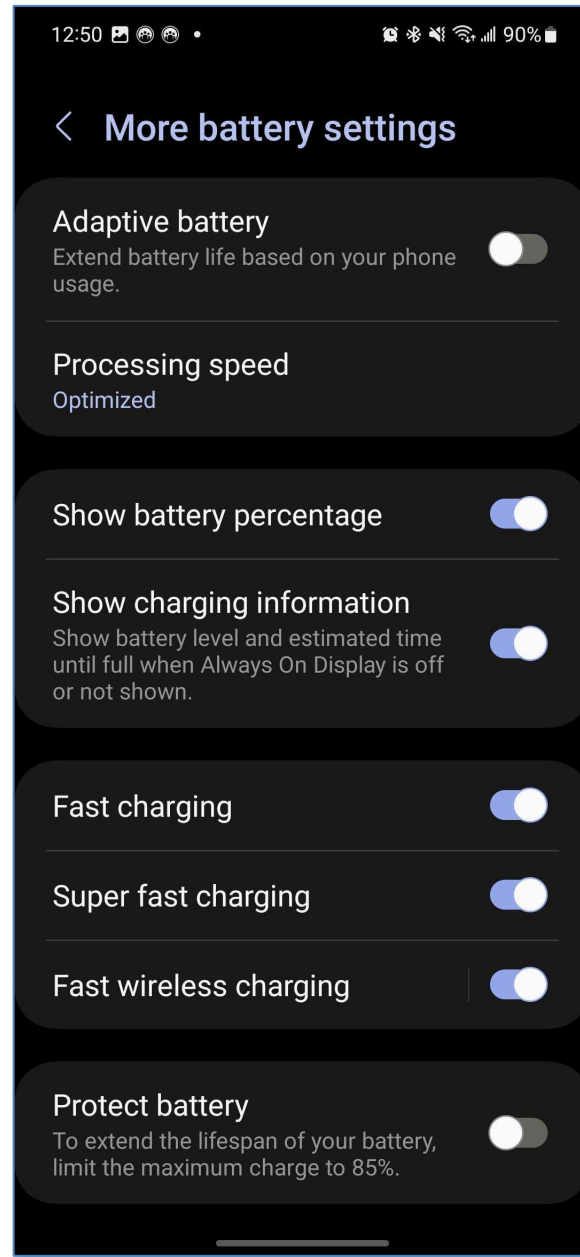
Claim	Public Documentation
	<div><p>Turn Data saver on or off ✓</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/ae/support/mobile-devices/android-pie-what-is-the-data-saver-feature/;</p>

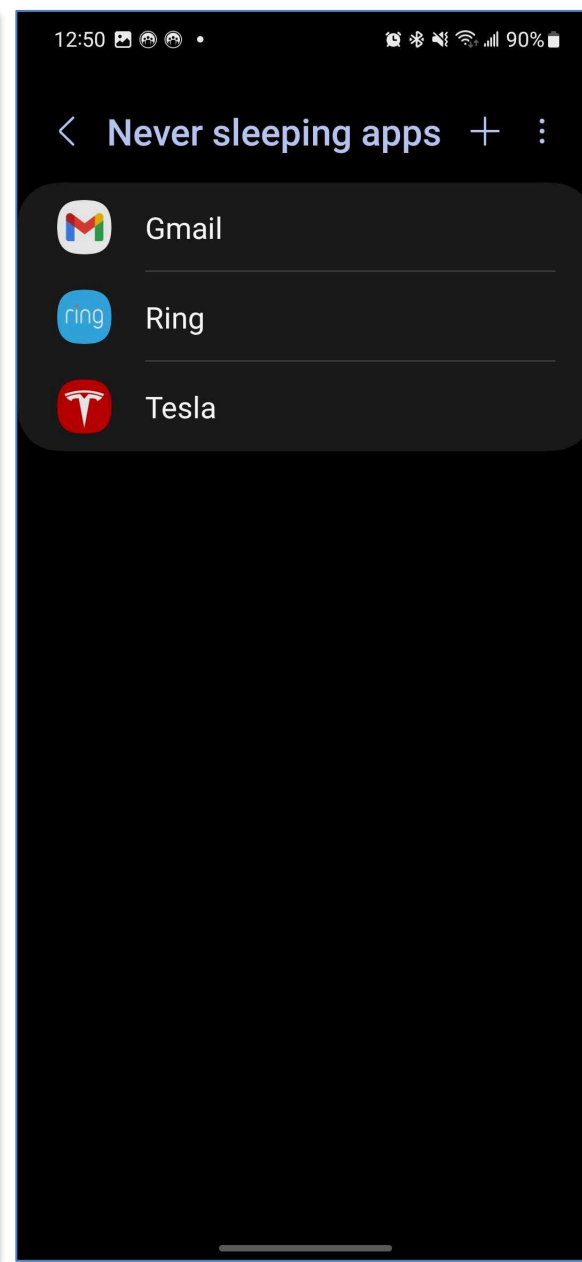
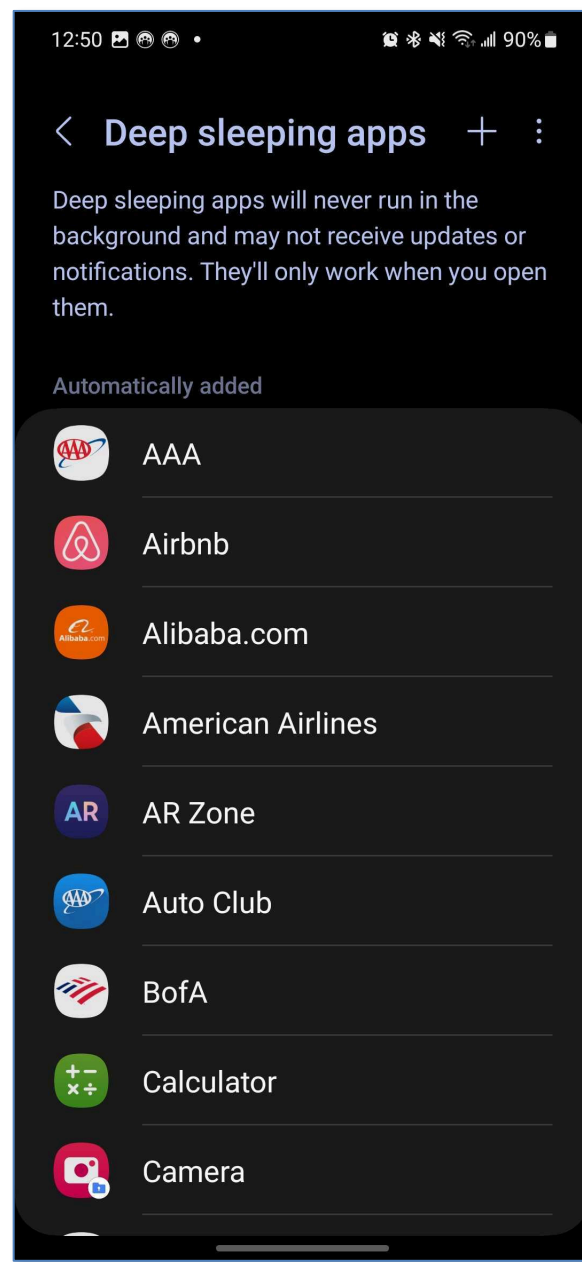
Claim	Public Documentation
	 <p>The image displays two side-by-side screenshots of an Android phone's 'Data saver' settings page. The left screenshot, taken at 4:28, shows the 'Data saver' toggle switch in the 'Off' position, highlighted with a red rectangular box. Below the toggle, text explains that data saver helps cut down data usage by preventing apps from using data in the background. The right screenshot, taken at 4:29, shows the same 'Data saver' toggle switch in the 'On' position, also highlighted with a red rectangular box. A large red arrow points from the 'Off' state in the left screenshot to the 'On' state in the right screenshot, indicating a transition or activation of the feature.</p>

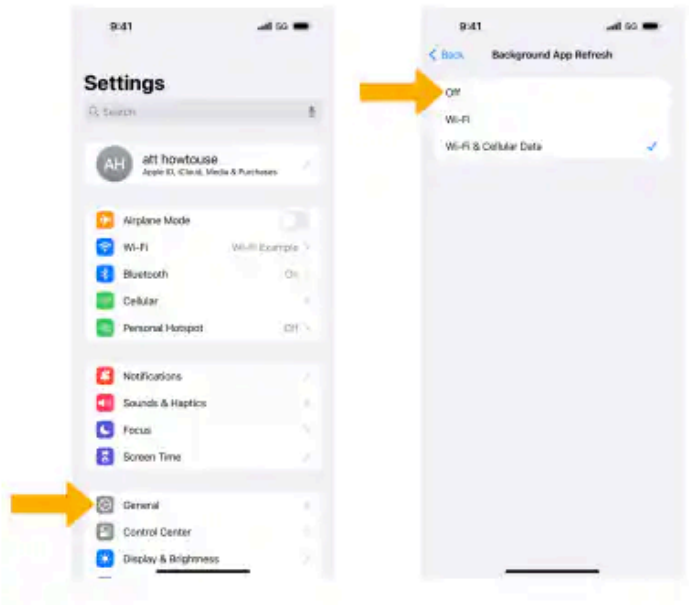
Claim	Public Documentation
	<p>6 Toggle the switches on next to the apps that you need to receive notifications from all the time. Email, Messages, Messenger, Instagram and Facebook are all popular options to allow unrestricted data access..</p>  <p>; https://www.samsung.com/us/support/answer/ANS00078987/:</p>



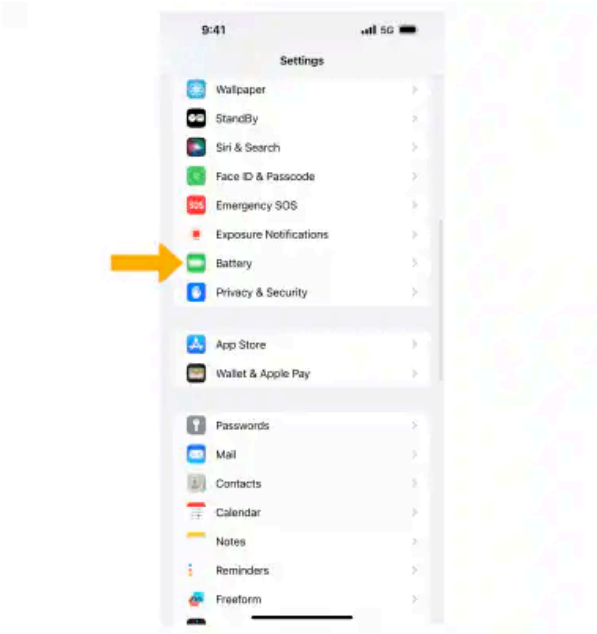
Claim	Public Documentation
	<div><div>Power saving mode</div><div>✓</div><p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p><p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p><div><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Battery and device care.2. Tap Battery, and then tap Power saving.3. Tap the switches next to your desired settings or customizations.4. Finally, tap the switch at the top of the screen to activate Power saving mode.</div><div><p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p></div><div><div>Power saving options</div><div><p>Choose additional limits to save battery when Power saving mode is on.</p></div><div><div>Turn off Always On Display <input type="checkbox"/></div><div>Limit CPU speed to 70% <input type="checkbox"/></div><div>Decrease brightness by 10% <input type="checkbox"/></div></div></div><p><i>see also</i> the exemplary screenshots below:</p></div>

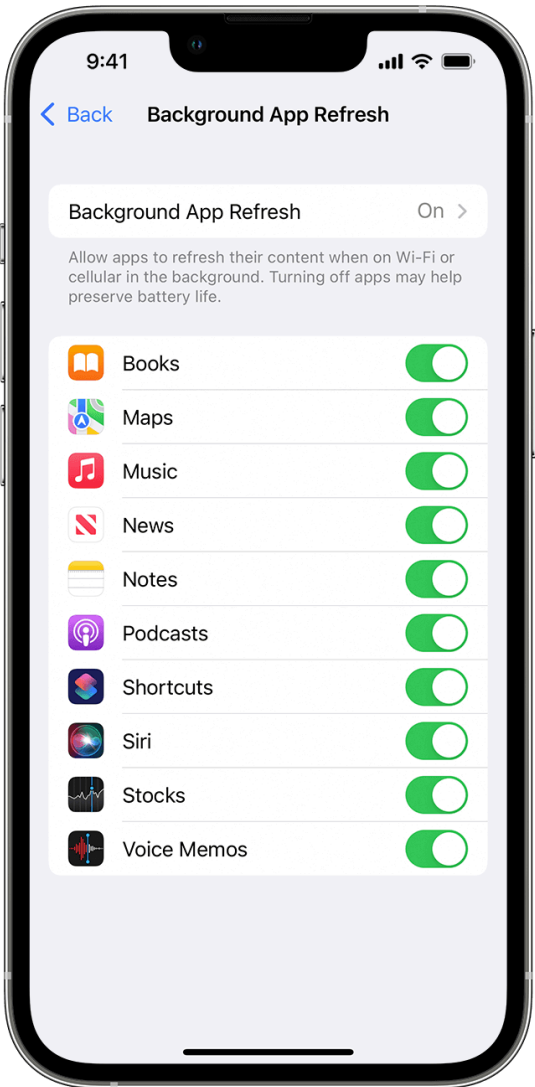






Claim	Public Documentation
	<p>See also, e.g., https://www.att.com/device-support/article/wireless/000097086/Apple/iPhone15Pro/:</p> <p>TURN OFF BACKGROUND APP REFRESH: From the Settings screen, select General > Background App Refresh > Background App Refresh > Off.</p>  <p>The image contains two screenshots of an iPhone's Settings app. The first screenshot shows the 'Settings' app with the 'General' option selected at the bottom. An orange arrow points from the 'General' option to the second screenshot. The second screenshot shows the 'Background App Refresh' settings page, where the 'Off' option is selected. Another orange arrow points from the 'Off' option to the first screenshot, indicating a sequence of steps.</p>

Claim	Public Documentation
	<p>Enable Low Power Mode</p> <p>1. From the home screen, select the  Settings app.</p> <p><i>Note: iPhone automatically prompts you to turn on Low Power mode when you have 20% battery life remaining.</i></p> <p>2. Scroll to and select Battery. Select the  Low Power Mode switch to place it in the On position.</p> <p><i>Note: When Low Power mode is on, the Battery icon turns yellow and the battery percentage is displayed in the status bar. Fetch, background app refresh, automatic downloads, and some visual effects are reduced or turned off. You can view your app usage for the Last 24 Hours or the Last 5 Days. Select the desired option to view.</i></p> <div>A screenshot of an iPhone's Settings app. The 'Settings' title is at the top. A list of settings categories is shown, including 'Wallpaper', 'StandBy', 'Siri & Search', 'Face ID & Passcode', 'Emergency SOS', 'Exposure Notifications', 'Battery', 'Privacy & Security', 'App Store', 'Wallet & Apple Pay', 'Passwords', 'Mail', 'Contacts', 'Calendar', 'Notes', 'Reminders', and 'Freeform'. A yellow arrow points to the 'Battery' option in the list. The status bar at the top shows the time '9:41' and '5G' signal.</div> <p>; https://support.apple.com/en-us/HT202070:</p>

Claim	Public Documentation
	<div><h2>Use Background App Refresh</h2></div> <div><p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p></div> <div><p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p></div> <div><p>https://support.apple.com/en-us/HT205234:</p></div> <div></div>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

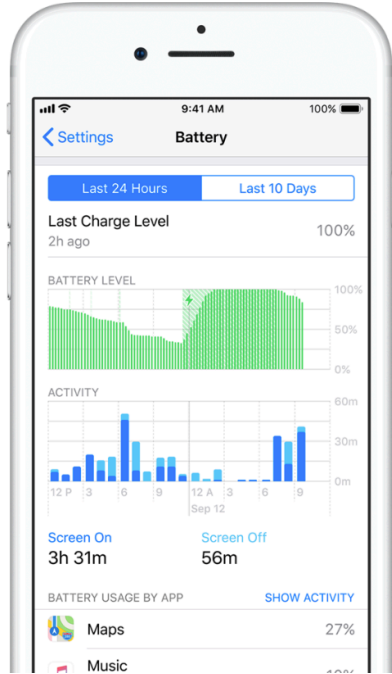
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.








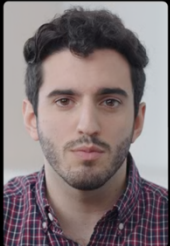




1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

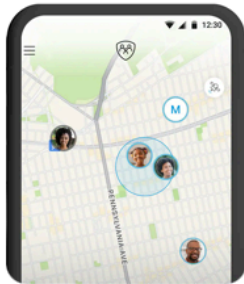
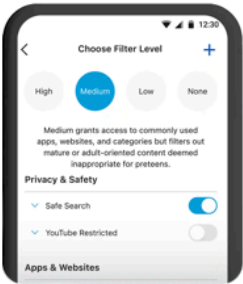
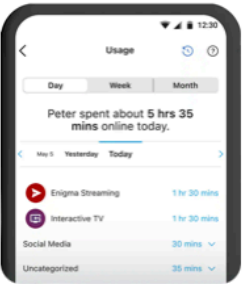
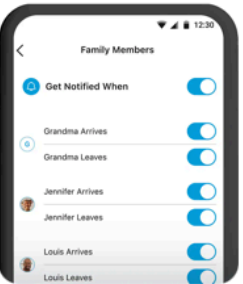
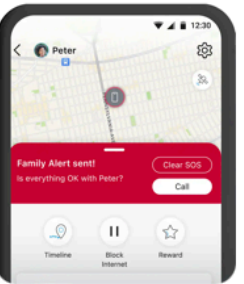
2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/; https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/prepar-</p>

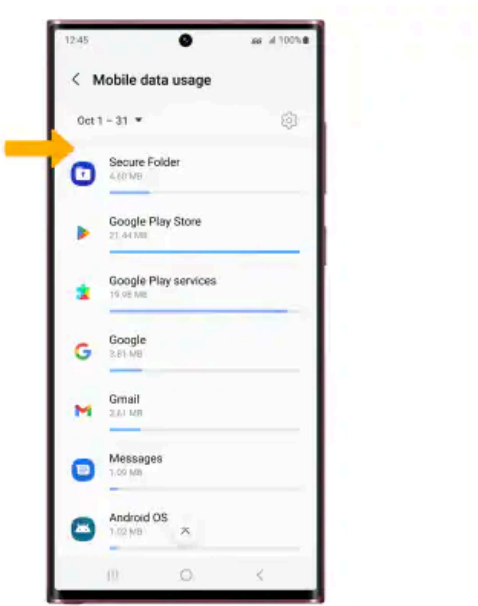
Claim	Public Documentation															
	<p>ing your ui to run in the background/using background tasks to update your app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks/bgappprefreshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; backgroundfetchintervalminimum/; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus/; https://developer.apple.com/documentation/uikit/uiapplication/1623003-applicationstate; https://developer.apple.com/documentation/uikit/uiapplication/state; https://developer.apple.com/documentation/foundation/url_loading_system; https://developer.apple.com/documentation/foundation/urlsession; https://developer.apple.com/documentation/avfoundation/avplayer; https://developer.apple.com/documentation/avfoundation/media_playback/configuring_your_app_for_media_playback/; https://developer.apple.com/videos/play/wwdc2019/707/; https://developer.apple.com/videos/play/wwdc2020/10063/;</p> <div><h2>Factors affecting your runtime</h2><table><tr><td>Critically low battery</td><td>Background App Refresh switch</td><td>Airplane mode</td></tr><tr><td>Low Power Mode</td><td>Ongoing iCloud restore</td><td>Settings</td><td>Display on/off state</td></tr><tr><td>Device temperature</td><td>System budgets</td><td>Process contention</td><td>App usage</td></tr><tr><td>App switcher</td><td>Rate limiting</td><td>Camera in-use</td><td>Device lock state</td></tr></table></div>	Critically low battery	Background App Refresh switch	Airplane mode	Low Power Mode	Ongoing iCloud restore	Settings	Display on/off state	Device temperature	System budgets	Process contention	App usage	App switcher	Rate limiting	Camera in-use	Device lock state
Critically low battery	Background App Refresh switch	Airplane mode														
Low Power Mode	Ongoing iCloud restore	Settings	Display on/off state													
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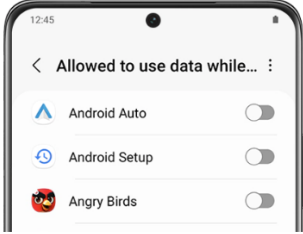
Claim	Public Documentation
	<div><h3>Top factors</h3><div><div> Critically low battery</div><div> Low Power Mode</div><div> App usage</div><div> App switcher</div><div> Background App Refresh switch</div><div> System budgets</div><div> Rate limiting</div></div><div></div><div></div></div>

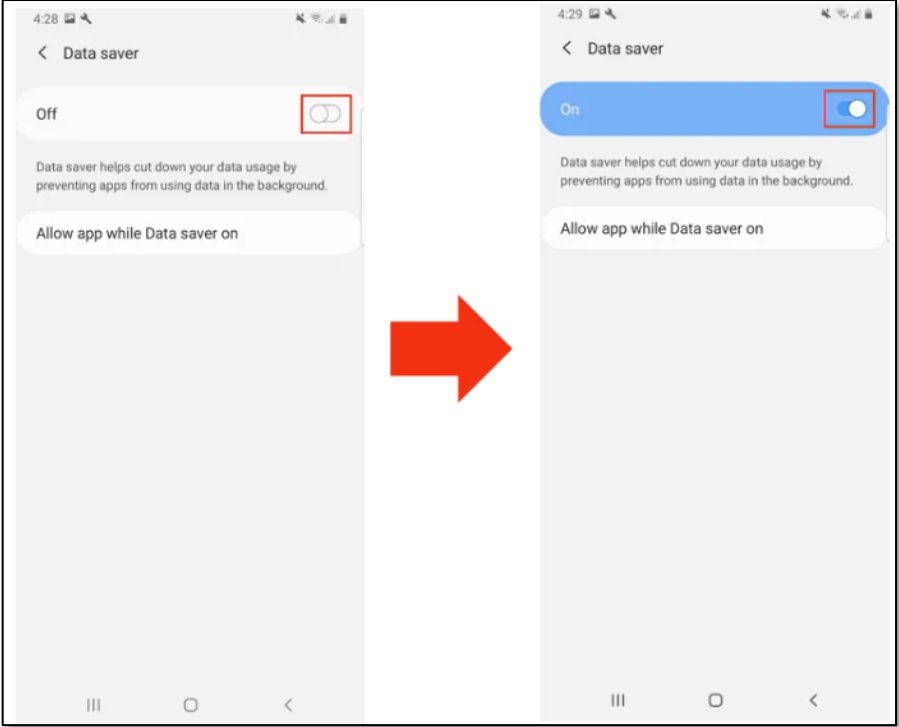
Claim	Public Documentation
	<div>Three Apple Watch screens are shown side-by-side. The first screen displays the 'Settings' app with options for General, Do Not Disturb, and Airplane Mode. The second screen displays the 'General' settings with options for Software Update, Orientation, Background App Refresh, and Wake Screen. The third screen displays the 'Background App Refresh' settings, showing a toggle switch turned off and a descriptive text block.</div> <p>As yet another example, the Accused Instrumentalities determine aspects of policies based on information from a network element. <i>See, e.g.,</i> https://www.att.com/plans/wireless/; https://www.att.com/wireless/; https://www.business.att.com/?bref=IBBz250012babsbzL; https://www.att.com/prepaid/; https://www.att.com/device-support/article/wireless/KM1124573/Apple/iPhone12Pro:</p>

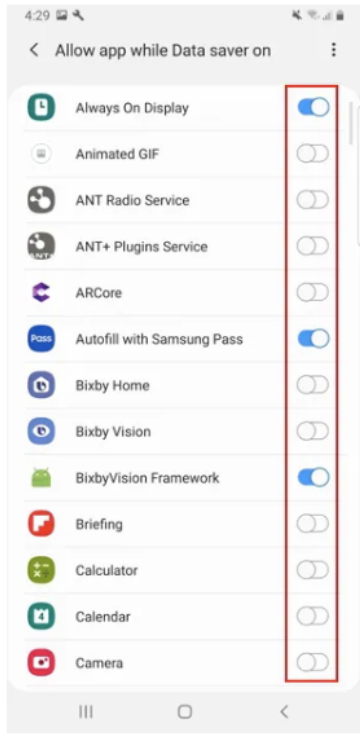
Claim	Public Documentation
	<p>Verify software update & update Carrier version</p> <ol style="list-style-type: none"> 1. Tap Settings, then General. 2. Tap About. 3. If a Carrier update is available, you'll be prompted to install it. 4. If the iOS version and the current software update details match, the device has the latest software. 5. For additional help, visit Apple Support: Find the software version on your iPhone, iPad, or iPod. <p>; https://www.att.com/security/secure-family-app/:</p> <p>Top safety features</p> <div> <div>  <p>Location tracking</p> <p>Track family member's devices in real-time on an interactive map, or track their location history on a breadcrumb trail map.</p> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  <p>Control what they access</p> <p>Filter or block apps and online content based on age-appropriate settings and set time limits for internet access and app usage.</p> </div> <div>  <p>Double check their online activities</p> <p>View your child's internet and app usage for the last 30 days, and temporarily halt their internet access when it's time for homework, bed, or dinner.</p> </div> <div>  <p>Set location alerts</p> <p>Get alerts when your child enters or leaves a saved area, or schedule alerts for additional peace of mind.</p> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  <p>SOS alerts</p> <p>One press of a button sends an SOS alert to the whole family.</p> </div> </div>

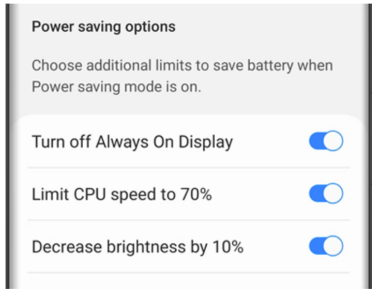
Claim	Public Documentation
	<p>https://www.att.com/features/myatt-app/.</p> <p>See also, e.g., https://developer.android.com/about/versions/pie/android-9.0:</p> <p>Data cost sensitivity in JobScheduler</p> <p>Beginning in Android 9, <code>JobScheduler</code> can use network status signals provided by carriers to improve the handling of network-related jobs.</p> <p>Jobs can declare their estimated data size, signal prefetching, and specify detailed network requirements. <code>JobScheduler</code> then manages work according to the network status. For example, when the network signals that it is congested, <code>JobScheduler</code> might defer large network requests. When on an unmetered network, <code>JobScheduler</code> can run prefetch jobs to improve the user experience, such as by prefetching headlines.</p> <p>When adding jobs, make sure to use <code>setEstimatedNetworkBytes()</code>, <code>setPrefetch()</code>, and <code>setRequiredNetwork()</code> when appropriate to help <code>JobScheduler</code> handle the work properly. When your job executes, be sure to use the <code>Network</code> object returned by <code>JobParameters.getNetwork()</code>. Otherwise you'll implicitly use the device's default network which may not meet your requirements, causing unintended data usage.</p> <p>; https://developer.android.com/training/basics/network-ops/reading-network-state; https://developer.android.com/training/connectivity/network-access-optimization; https://developer.android.com/reference/android/net/NetworkCapabilities.</p>
<p>[1e] and if it is determined that the service usage activity is the background activity, apply the policy.</p>	<p>The Accused Instrumentalities comprise “and if it is determined that the service usage activity is the background activity, apply the policy.”</p> <p>For example, Samsung Galaxy phones and tablets utilize Data Saver which applies the policy to background service usage activity. See, e.g., https://www.att.com/device-support/article/wireless/KM1476382/Samsung/SamsungSMS908U:</p>


Claim	Public Documentation
	<div><h3>View data usage by app</h3></div> <div><p>From the Mobile data usage screen, scroll to view data usage broken down by application.</p></div> <div><p><i>Note: To restrict apps from using data while running in the background, swipe down from the Notification bar, then select the Settings icon > Connections > Data usage > Data saver > Data saver switch. Your myAT&T account is also another way to manage your wireless usage.</i></p></div> <div></div> <div><p>; https://www.samsung.com/us/support/answer/ANS00079018/:</p></div>

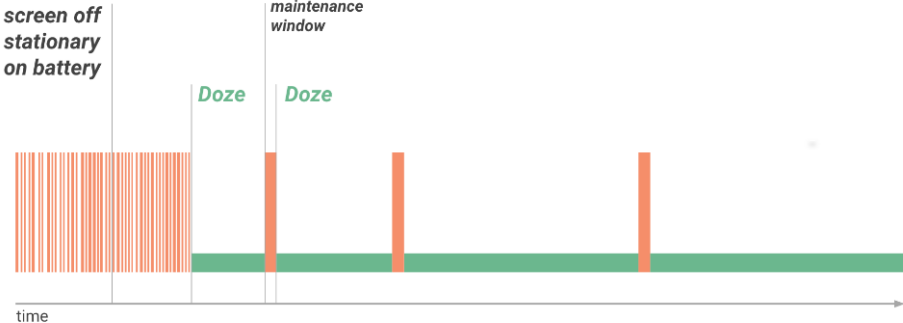
Claim	Public Documentation
	<div><div>Turn Data saver on or off</div><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/ae/support/mobile-devices/android-pie-what-is-the-data-saver-feature/;</p>

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	<p>6 Toggle the switches on next to the apps that you need to receive notifications from all the time. Email, Messages, Messenger, Instagram and Facebook are all popular options to allow unrestricted data access..</p>  <p>; https://www.samsung.com/us/support/answer/ANS00078987/:</p>

Claim	Public Documentation
	<div> <h3>Power saving mode ✓</h3> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with the instruction 'Choose additional limits to save battery when Power saving mode is on.' Below this are three toggle switches, all of which are turned on: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/basics/network-ops/data-saver:</p> <div> <h3>Optimize network data usage 🔖</h3> <p>Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.</p> <p>When a user enables Data Saver in Settings and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.</p> <p>Android 7.0 (API level 24) extends the <code>ConnectivityManager</code> API to provide apps with a way to retrieve the user's Data Saver preferences and monitor preference changes. It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.</p> </div>

Claim	Public Documentation
	<div><h3>Check data saver preferences</h3><p>On Android 7.0 (API level 24) and higher, apps can use the <code>ConnectivityManager</code> API to determine what data usage restrictions are being applied. The <code>getRestrictBackgroundStatus()</code> method returns one of the following values:</p><p><code>RESTRICT_BACKGROUND_STATUS_DISABLED</code></p><p>Data Saver is disabled.</p><p><code>RESTRICT_BACKGROUND_STATUS_ENABLED</code></p><p>The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.</p><p><code>RESTRICT_BACKGROUND_STATUS_WHITELISTED</code></p><p>The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.</p><p>Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses <code>ConnectivityManager.isActiveNetworkMetered()</code> and <code>ConnectivityManager.getRestrictBackgroundStatus()</code> to determine how much data the app should use:</p></div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby:</p> <div><h2>Optimize for Doze and App Standby </h2><p>Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. <i>Doze</i> reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. <i>App Standby</i> defers background network activity for apps with which the user has not recently interacted.</p><p>While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in Power Management Restrictions.</p><p>Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.</p></div>

Claim	Public Documentation
	<div> <h3>Understanding Doze</h3> <p>If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.</p> <p>Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this <i>maintenance window</i>, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.</p>  <p>Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.</p> </div> <div> <p>At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.</p> <p>As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.</p> </div> <div> <p>The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as tickles or notifications. If your app requires a persistent connection to the network to receive messages, you should use Firebase Cloud Messaging (FCM) if possible.</p> </div> <p>; https://developer.android.com/topic/performance/appstandby:</p>

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.




Note: Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [`UsageStatsManager.getAppStandbyBucket\(\)`](#).

The buckets are:

1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

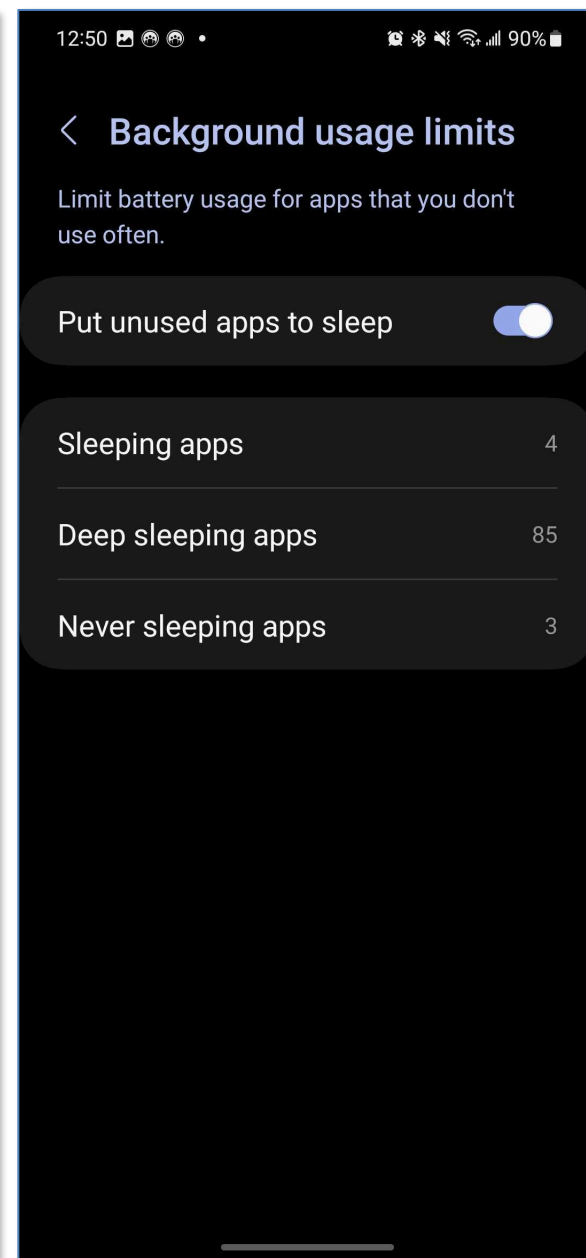
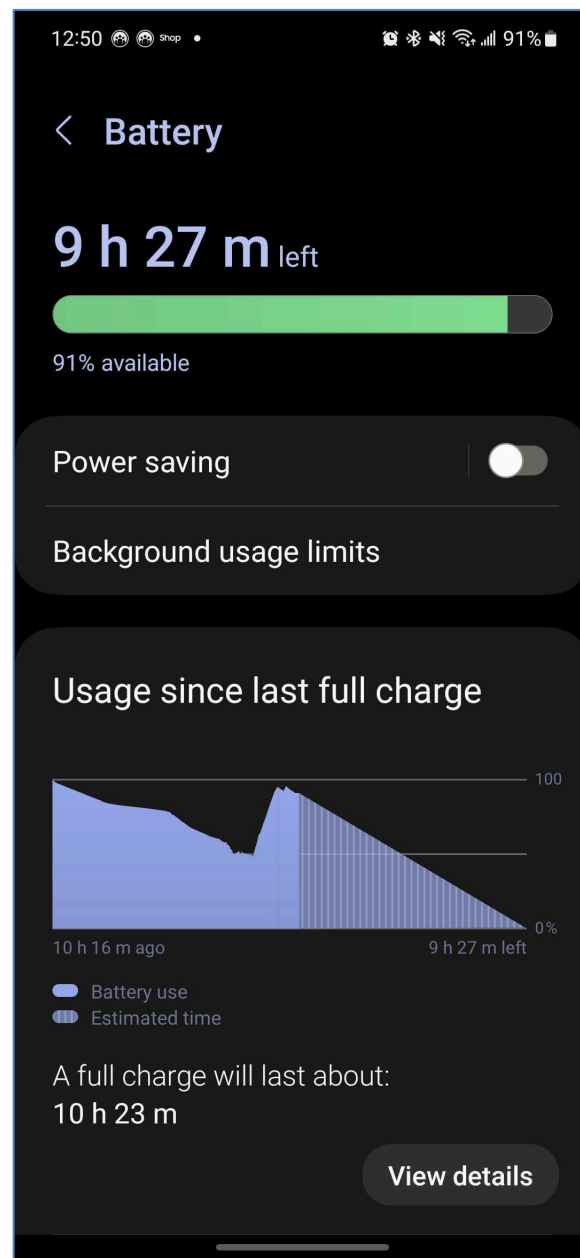
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	<p>; https://developer.android.com/topic/performance/power/power-details:</p> <h2>Power management restrictions </h2> <p>As described in Power management, the system can impose power restrictions on apps for a number of reasons. The following table outlines the current restrictions. These restrictions do not apply while the device is charging.</p> <p>In each case, the most restrictive applicable setting is the one that takes effect. For example, if Battery Saver is active and an app is in the Rare bucket, the more stringent App Standby Buckets restrictions on Firebase Cloud Messaging (FCM) are applied.</p>

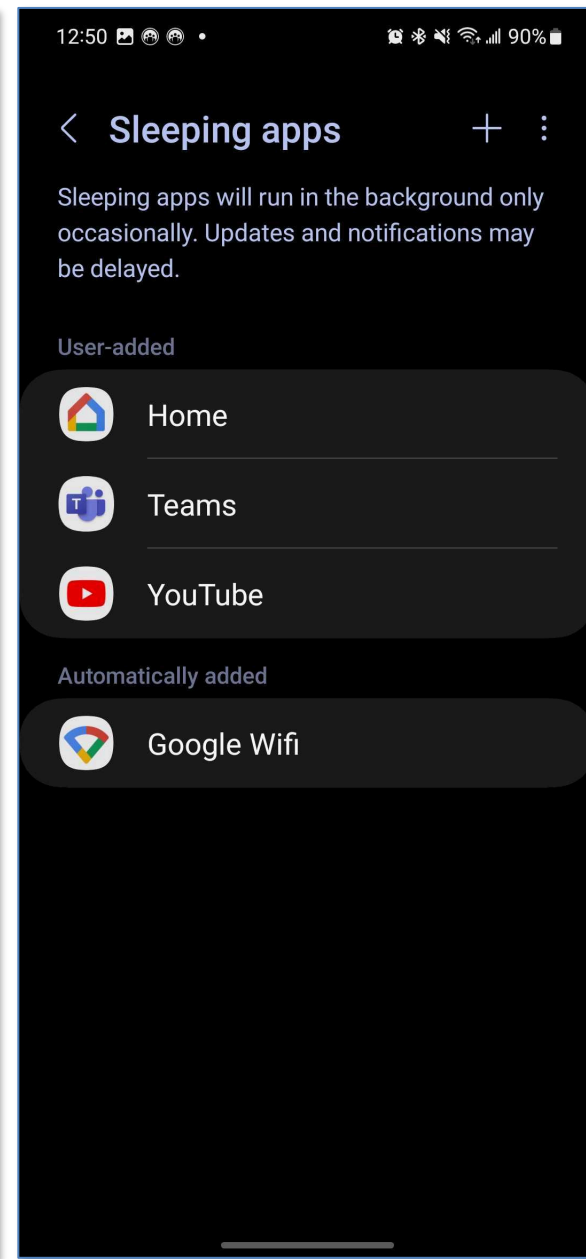
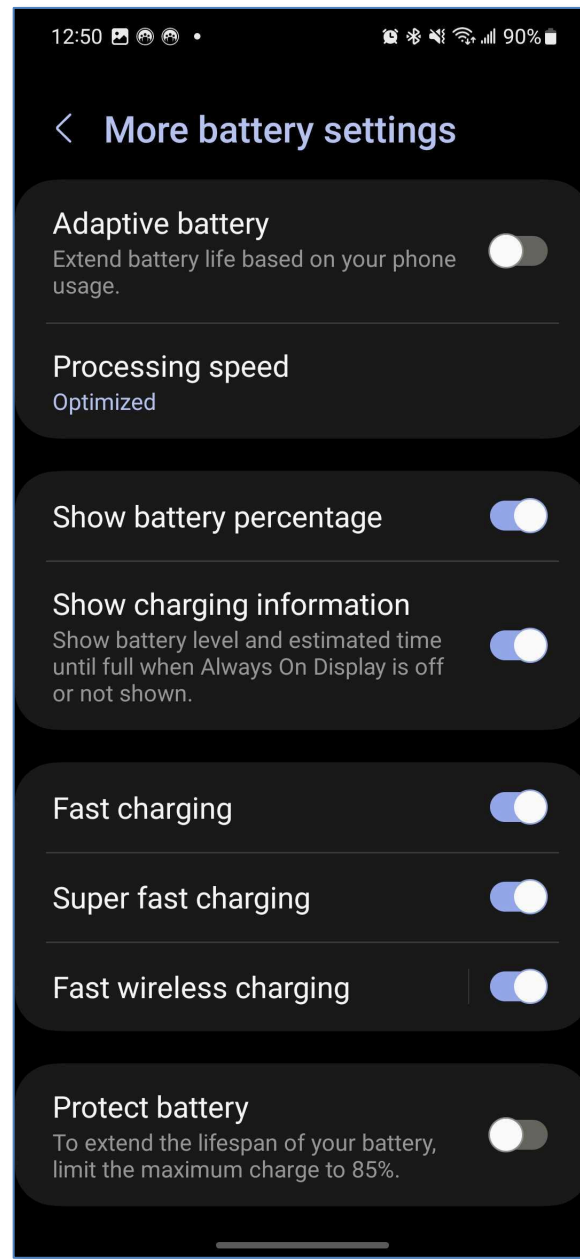
Setting	Jobs *	Alarms	Network †	Firebase Cloud Messaging §
User Restricts Background Activity				
Restrictions enabled:	Never	Never	No restriction	No restriction
Doze				
Doze active:	Deferred to window	Regular alarms: Deferred to window Inexact while-idle alarms: Limited to 1 per 9 minutes Exact while-idle alarms: Limited to 72 per hour	Deferred to window	High priority: No restriction Normal priority: Deferred to window
App Standby Buckets (by bucket)				
Active:	No restriction	No restriction	No restriction	No restriction
Working set:	Limited to 10 minutes every 2 hours	Limited to 10 per hour	No restriction	No restriction
Frequent:	Limited to 10 minutes every 8 hours	Limited to 2 per hour	No restriction	High priority: 10/day
Rare:	Limited to 10 minutes every 24 hours	Limited to 1 per hour	Disabled	High priority: 5/day
Restricted:	Once per day	One alarm per day, either an exact alarm or an inexact alarm	Disabled	High priority: 5/day

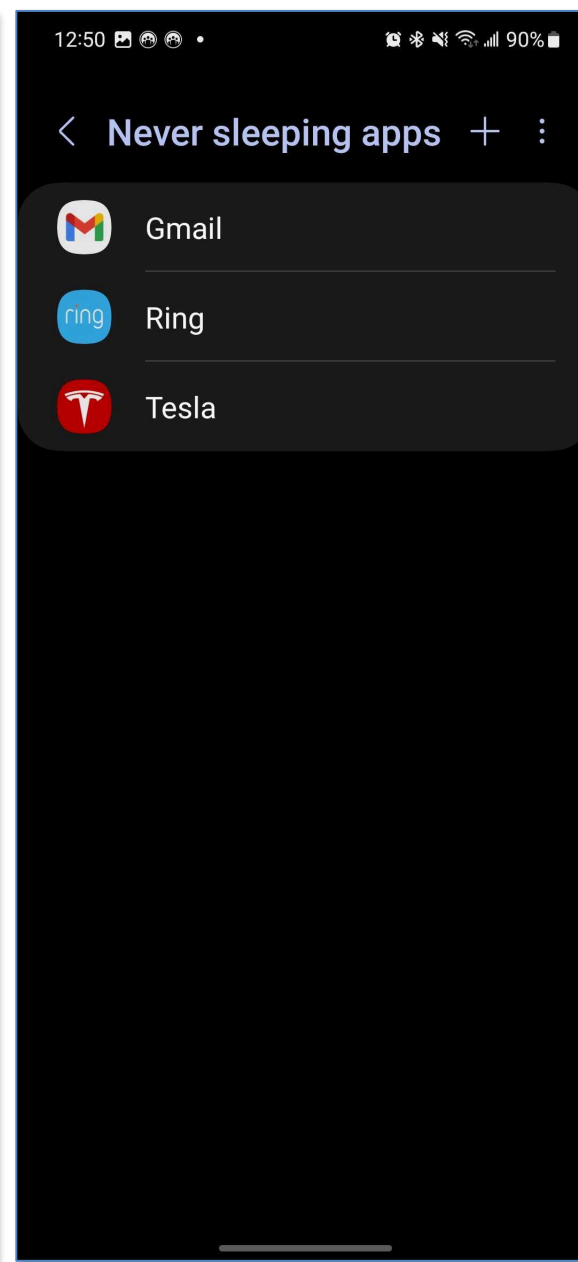
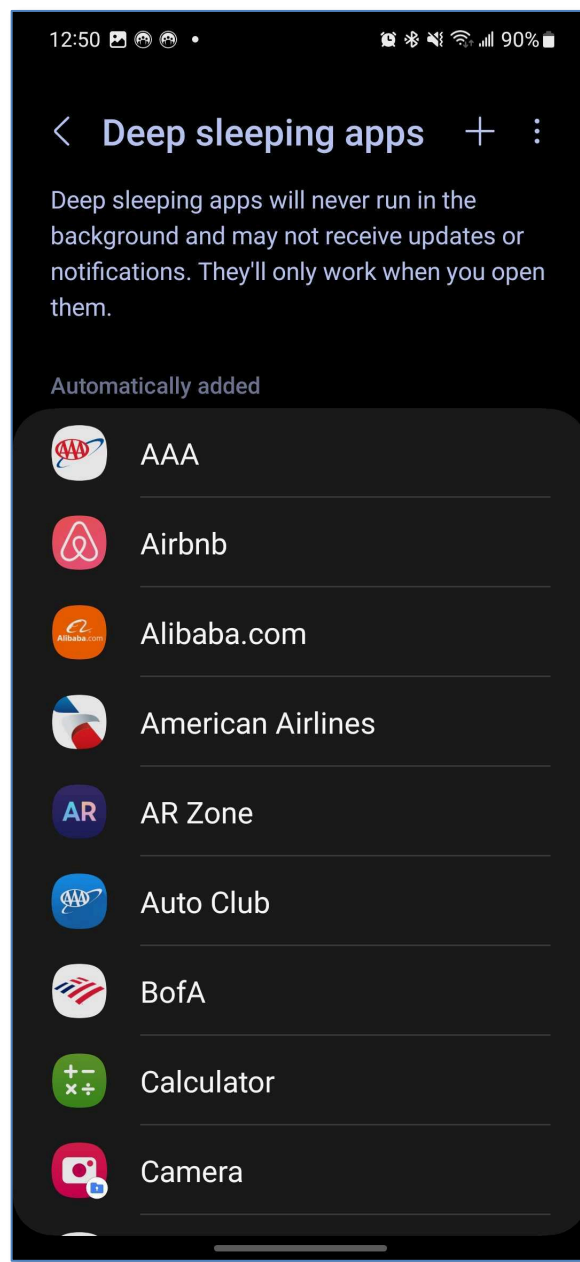
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	; https://developer.android.com/topic/performance/background-optimization ; https://developer.android.com/reference/android/app/job/JobScheduler ; https://developer.android.com/guide/background/persistent ; https://developer.android.com/guide/components/activities/activity-lifecycle :

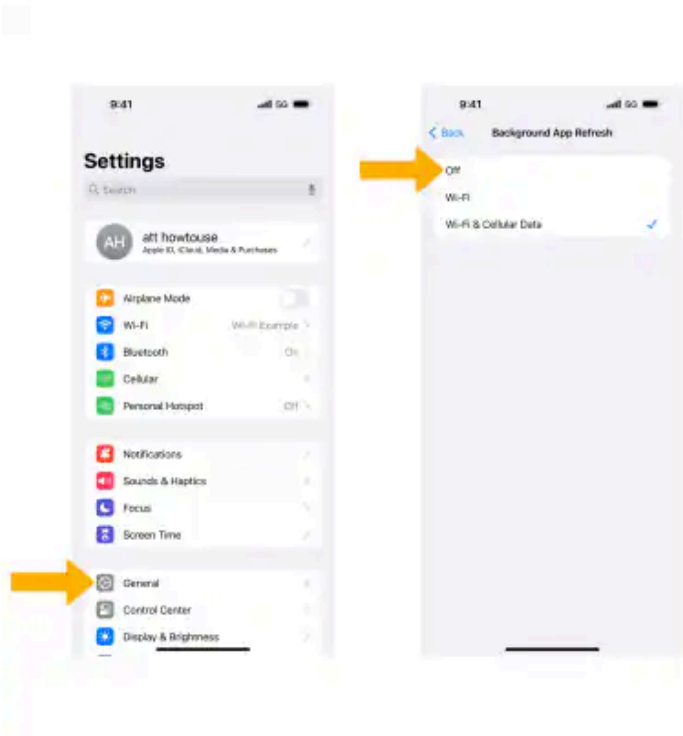
Claim	Public Documentation
	<p>Activity-lifecycle concepts</p> <p>To navigate transitions between stages of the activity lifecycle, the <code>Activity</code> class provides a core set of six callbacks: <code>onCreate()</code>, <code>onStart()</code>, <code>onResume()</code>, <code>onPause()</code>, <code>onStop()</code>, and <code>onDestroy()</code>. The system invokes each of these callbacks as the activity enters a new state.</p> <p>Figure 1 presents a visual representation of this paradigm.</p> <p>As the user begins to leave the activity, the system calls methods to dismantle the activity. In some cases, the activity is only partially dismantled and still resides in memory, such as when the user switches to another app. In these cases, the activity can still come back to the foreground.</p> <p>If the user returns to the activity, it resumes from where the user left off. With a few exceptions, apps are restricted from starting activities when running in the background.</p> <p>The system's likelihood of killing a given process, along with the activities in it, depends on the state of the activity at the time. For more information on the relationship between state and vulnerability to ejection, see the section about activity state and ejection from memory.</p> <p>Depending on the complexity of your activity, you probably don't need to implement all the lifecycle methods. However, it's important that you understand each one and implement those that make your app behave the way users expect.</p> <div> <pre> graph TD A([Activity launched]) --> B[onCreate()] B --> C[onStart()] C --> D[onResume()] D --> E([Activity running]) E --> F[onPause()] F --> G[onStop()] G --> H[onDestroy()] H --> I([Activity shut down]) F -- "User returns to the activity" --> D G -- "User navigates to the activity" --> C G -- "User navigates to the activity" --> J([App process killed]) J -- "User navigates to the activity" --> C G -- "Apps with higher priority need memory" --> J J -- "User returns to the activity" --> K([onRestart()]) K --> C </pre> <p>The flowchart illustrates the lifecycle of an Android activity. It begins with 'Activity launched', followed by the callbacks <code>onCreate()</code>, <code>onStart()</code>, and <code>onResume()</code>, leading to the 'Activity running' state. From 'Activity running', the activity can move to <code>onPause()</code> (e.g., 'Another activity comes into the foreground') or <code>onStop()</code> (e.g., 'The activity is no longer visible'). From <code>onPause()</code>, it can return to <code>onResume()</code> if the 'User returns to the activity'. From <code>onStop()</code>, it can return to <code>onRestart()</code> if the 'User navigates to the activity', which then leads back to <code>onStart()</code>. Alternatively, <code>onStop()</code> can lead to 'App process killed' if 'Apps with higher priority need memory' or if the 'User navigates to the activity'. From 'App process killed', the user can 'navigate to the activity' again, returning to <code>onStart()</code>. Finally, <code>onDestroy()</code> leads to 'Activity shut down'.</p> </div> <p>Figure 1. A simplified illustration of the activity lifecycle.</p>



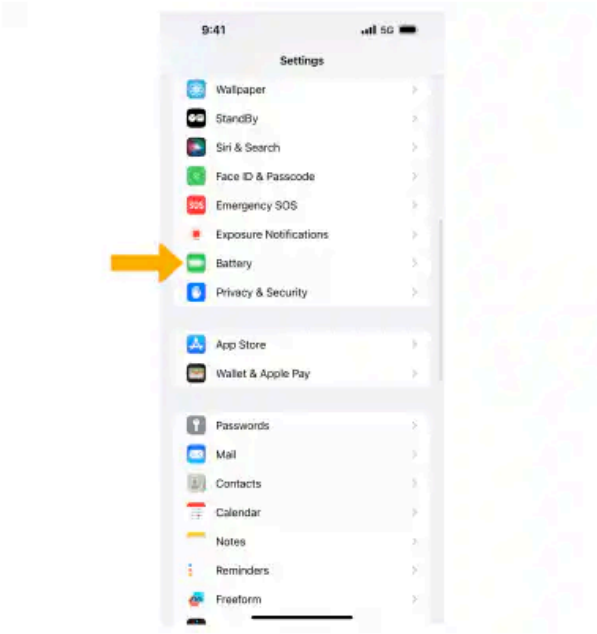
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	<p>; https://developer.android.com/guide/components/activities/process-lifecycle; https://developer.android.com/guide/background; https://developer.android.com/about/versions/pie/android-9.0; https://developer.android.com/training/basics/network-ops/reading-network-state; https://developer.android.com/training/connectivity/network-access-optimization; https://developer.android.com/reference/android/net/NetworkCapabilities. <i>see also</i> the exemplary screenshots below:</p>

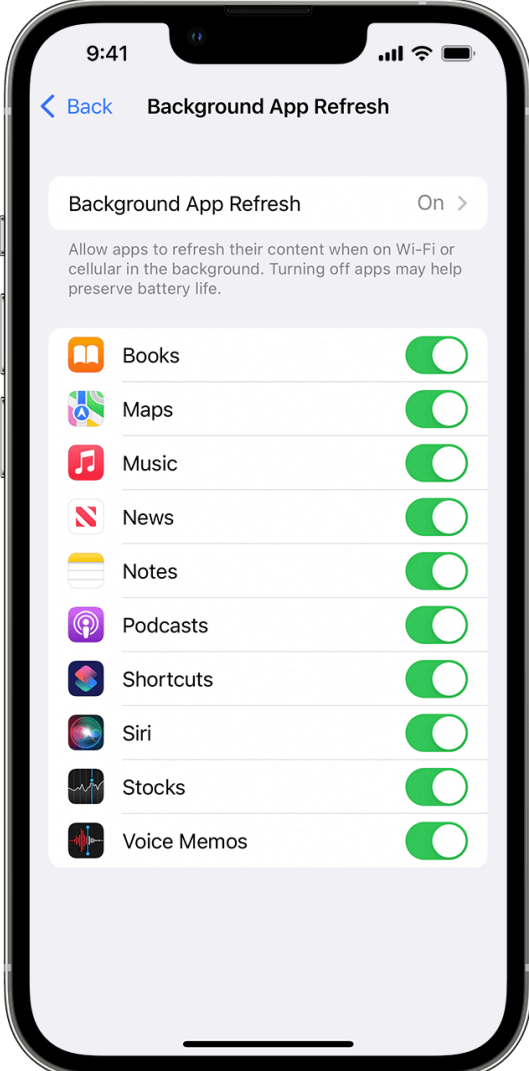






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	<p><i>See also, e.g.,</i> https://www.att.com/device-support/article/wireless/000097086/Apple/iPhone15Pro/:</p> <p>TURN OFF BACKGROUND APP REFRESH: From the Settings screen, select General > Background App Refresh > Background App Refresh > Off.</p>  <p>The image contains two screenshots from an iPhone. The first screenshot shows the 'Settings' app with the 'General' option highlighted by a yellow arrow. The second screenshot shows the 'Background App Refresh' settings page, where the 'Off' option is selected by a yellow arrow. The 'Background App Refresh' page also shows 'Wi-Fi' and 'Wi-Fi & Cellular Data' options.</p>

Claim	Public Documentation
	<p>Enable Low Power Mode</p> <p>1. From the home screen, select the  Settings app.</p> <p><i>Note: iPhone automatically prompts you to turn on Low Power mode when you have 20% battery life remaining.</i></p> <p>2. Scroll to and select Battery. Select the  Low Power Mode switch to place it in the On position.</p> <p><i>Note: When Low Power mode is on, the Battery icon turns yellow and the battery percentage is displayed in the status bar. Fetch, background app refresh, automatic downloads, and some visual effects are reduced or turned off. You can view your app usage for the Last 24 Hours or the Last 5 Days. Select the desired option to view.</i></p> <div>A screenshot of an iPhone's Settings app. The 'Settings' title is at the top. A list of settings categories is shown, including 'Wallpaper', 'StandBy', 'Siri & Search', 'Face ID & Passcode', 'Emergency SOS', 'Exposure Notifications', 'Battery', 'Privacy & Security', 'App Store', 'Wallet & Apple Pay', 'Passwords', 'Mail', 'Contacts', 'Calendar', 'Notes', 'Reminders', and 'Freeform'. A yellow arrow points to the 'Battery' option in the list. The status bar at the top shows the time '9:41' and '5G' signal.</div> <p>; https://support.apple.com/en-us/HT202070:</p>

Claim	Public Documentation
	<div><h2>Use Background App Refresh</h2></div> <div><p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p></div> <div><p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p></div> <div><p>https://support.apple.com/en-us/HT205234:</p></div> <div></div>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

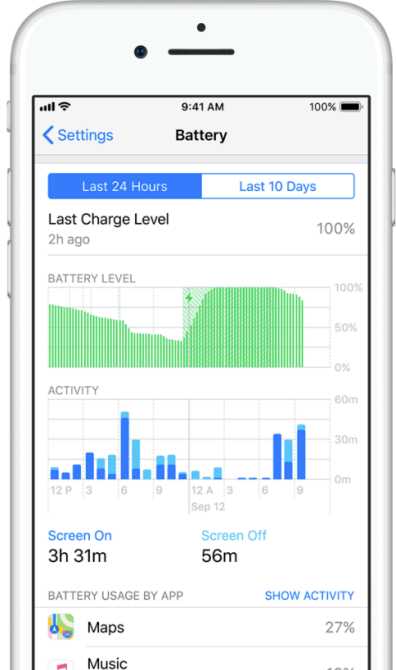
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.



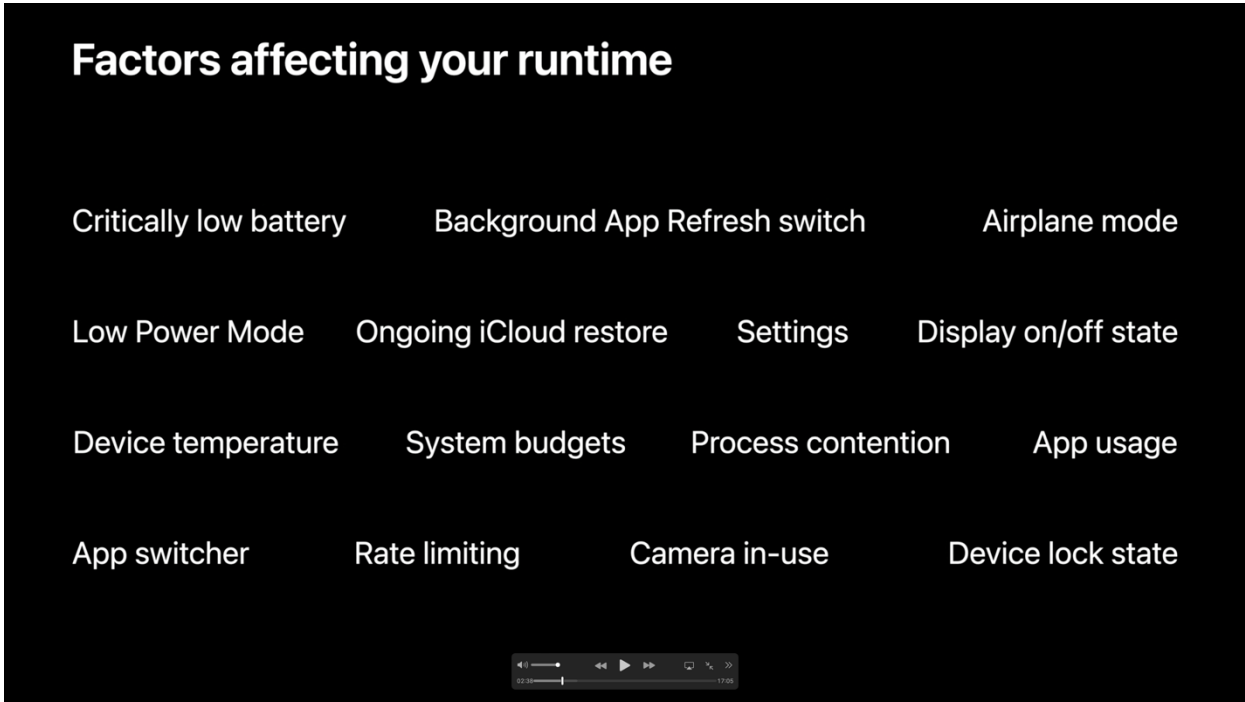
1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).









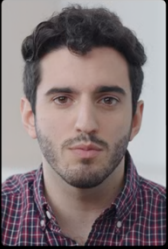
2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/uiapplication/1623003-applicationstate:</p>

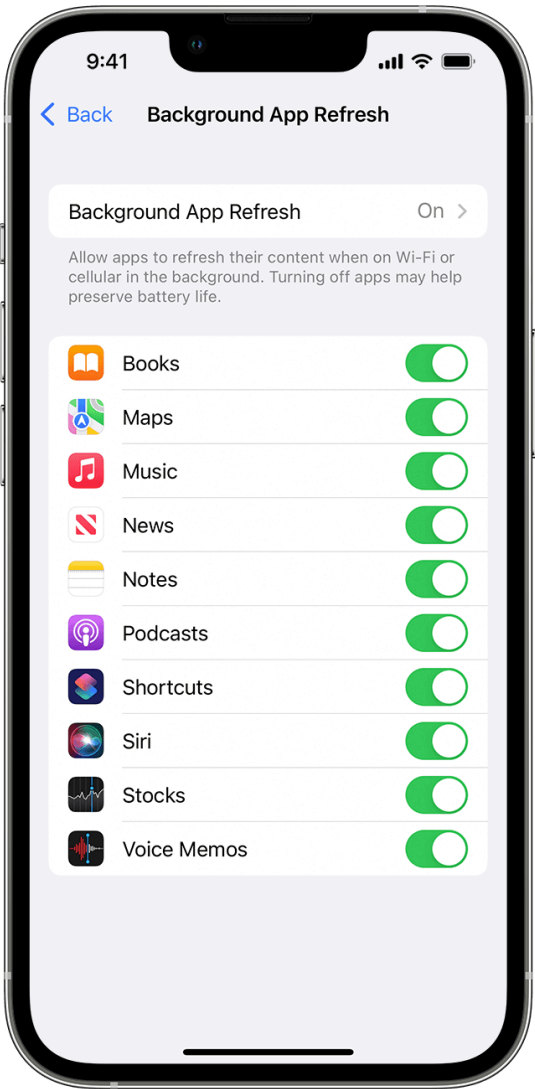
Claim	Public Documentation
	<div>Instance Property</div> <div>applicationState</div> <div>The app's current state, or that of its most active scene.</div> <div> <div>iOS 4.0+</div> <div>iPadOS 4.0+</div> <div>Mac Catalyst 13.1+</div> <div>tvOS 9.0+</div> <div>visionOS 1.0+ Beta</div> </div> <div> <pre>var applicationState: UIApplication.State { get }</pre> </div> <hr/> <div>Discussion</div> <div>The behavior of this property depends on whether your app is scene-based.</div> <div>In a scene-based app, this property takes the value of the most active scene, which it determines from each scene's activationState property. A scene-based app launches in the background state, and transitions between its states as scenes connect, change their states, and disconnect. For scene-based apps, use UISceneDelegate to respond to changes in an individual scene's life cycle.</div> <div>In a sceneless app, the property's value is always the app's current state. The app is inactive at launch, and then is generally in either an active or background state. The app may become inactive for a short period — for example, when transitioning between active and background states, when the system presents an alert in front of it, or when the system displays the application switcher. For sceneless apps, use UIApplicationDelegate to respond to the app's life cycle changes.</div> <div> <p> https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/; </p> </div>

Claim	Public Documentation
	<p>https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks https://developer.apple.com/documentation/backgroundtasks/bgapprefreshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum/; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus/; https://developer.apple.com/documentation/uikit/uiapplication/1623003-applicationstate; https://developer.apple.com/documentation/uikit/uiapplication/state; https://developer.apple.com/documentation/foundation/url_loading_system; https://developer.apple.com/documentation/foundation/urlsession; https://developer.apple.com/documentation/avfoundation/avplayer; https://developer.apple.com/documentation/avfoundation/media_playback/configuring_your_app_for_media_playback; https://developer.apple.com/videos/play/wwdc2019/707/; https://developer.apple.com/videos/play/wwdc2020/10063;</p>

Claim	Public Documentation
	 <p>The screenshot shows a video player interface with a black background and white text. The title 'Factors affecting your runtime' is at the top. Below it, there are four rows of text, each containing four factors. At the bottom, there is a video player control bar showing a progress bar and a timestamp of 17:08.</p> <p>Factors affecting your runtime</p> <p>Critically low battery Background App Refresh switch Airplane mode</p> <p>Low Power Mode Ongoing iCloud restore Settings Display on/off state</p> <p>Device temperature System budgets Process contention App usage</p> <p>App switcher Rate limiting Camera in-use Device lock state</p> <p>17:08</p>

Claim	Public Documentation
	<div><h3>Top factors</h3><ul style="list-style-type: none"> Critically low battery Low Power Mode App usage App switcher Background App Refresh switch System budgets Rate limiting</div>

Claim	Public Documentation
	 <p>Three Apple Watch screens are shown side-by-side. The first screen displays the 'Settings' app with options for General, Do Not Disturb, and Airplane Mode. The second screen displays the 'General' settings page with options for Software Update, Orientation, Background App Refresh, and Wake Screen. The third screen displays the 'Background App Refresh' settings page, showing a toggle switch for 'Background App Refresh' which is currently turned off. Below the toggle, text explains that turning off this feature may preserve battery life and that apps with complications will continue to refresh even when background app refresh is off.</p> <p>; see also, e.g., https://www.att.com/plans/wireless/; https://www.att.com/wireless/; https://www.business.att.com/?bref=IBBz250012babsbzL; https://www.att.com/prepaid/; https://www.att.com/device-support/article/wireless/KM1124573/Apple/iPhone12Pro.</p>
<p>2. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application component or at least a portion of an operating system component, and wherein the one or more prospective or successful communications over the wireless network comprise an update to the first software component.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application component or at least a portion of an operating system component, and wherein the one or more prospective or successful communications over the wireless network comprise an update to the first software component.”</p> <p>See, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by “checking for updates and new content”) over wireless networks to “refresh in the background,” perform “Automatic downloads,” “prevent[] some apps from sending or receiving data in the background,” “apps running in the background may not receive updates,” etc. See, e.g., https://support.apple.com/en-us/HT202070:</p>

Claim	Public Documentation
	<div><h2>Use Background App Refresh</h2></div> <div><p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p></div> <div><p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p></div> <div><p>https://support.apple.com/en-us/HT205234:</p></div> <div></div>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

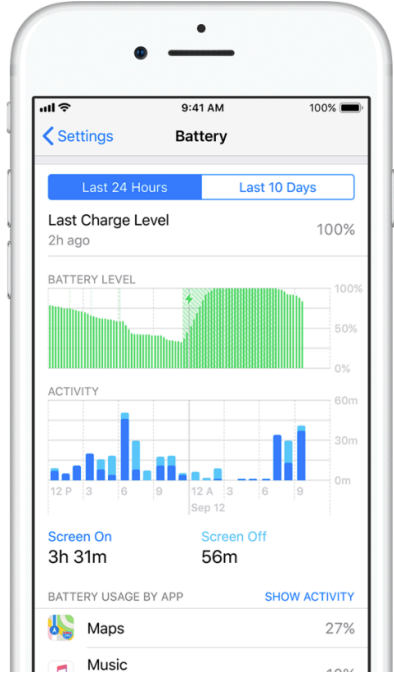
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

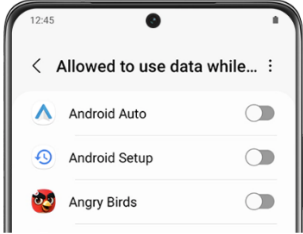
When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.

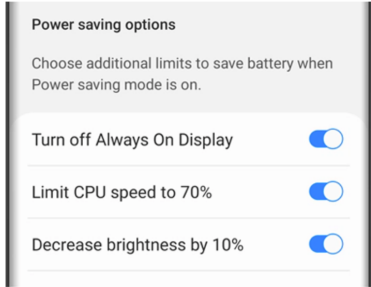


1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

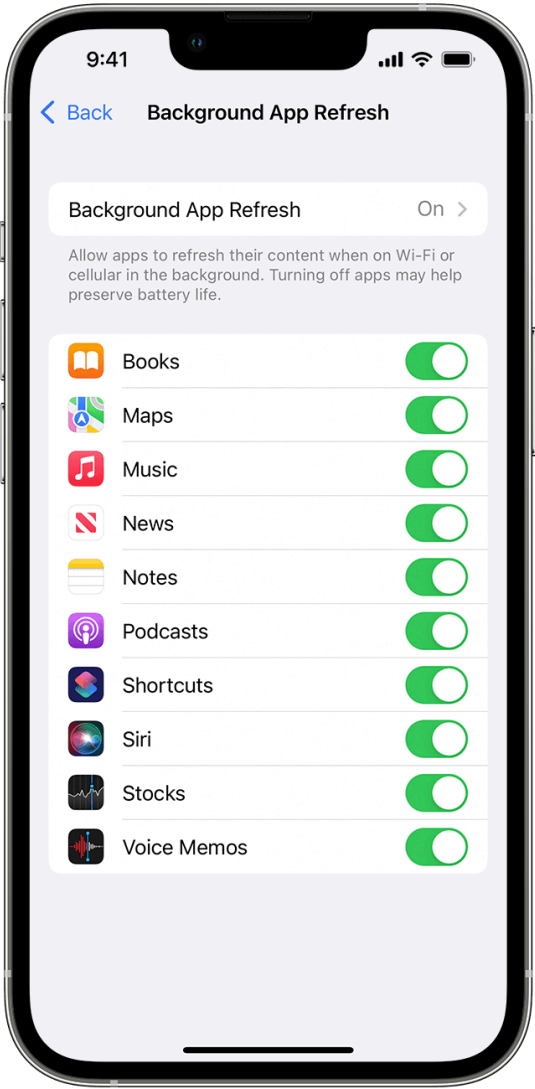
2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/; https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks</p>

Claim	Public Documentation
	<p>https://developer.apple.com/documentation/backgroundtasks/bgapprefresheshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus; https://www.samsung.com/us/support/answer/ANS00079018/;</p> <div><p>Turn Data saver on or off</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/us/support/answer/ANS00078987/;</p>

Claim	Public Documentation
	<p>Power saving mode ✓</p> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>; https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>3. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a network access, background signaling, a cloud synchronization service, an information feed, a download, an</p>	<p>The Accused Instrumentalities comprise the “the one or more prospective or successful communications over the wireless network comprise a communication associated with a network access, background signaling, a cloud synchronization service, an information feed, a download, an e-mail, a chat client, a security update, a peer-to-peer networking application update, a report of a behavior associated with the wireless end-user device, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claim 1.</i></p>

Claim	Public Documentation
e-mail, a chat client, a security update, a peer-to-peer networking application update, a report of a behavior associated with the wireless end-user device, or a combination of these.	As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by “checking for updates and new content”) over wireless networks to “refresh in the background,” perform “Automatic downloads,” “Email fetch,” “temporarily pause” iCloud photos, “prevent[] some apps from sending or receiving data in the background,” “apps running in the background may not receive updates,” etc. <i>See, e.g.</i> , https://support.apple.com/en-us/HT202070 :

Claim	Public Documentation
	<div><h2>Use Background App Refresh</h2></div> <div><p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p></div> <div><p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p></div> <div><p>https://support.apple.com/en-us/HT205234:</p></div> <div></div>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

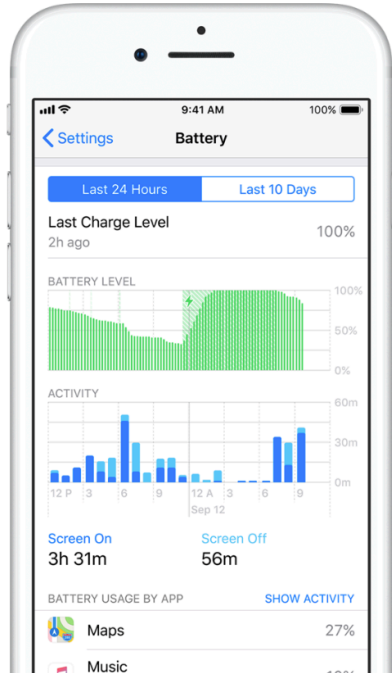
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

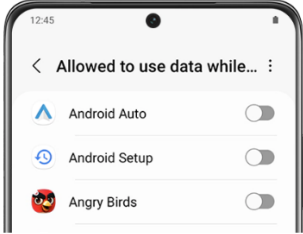
When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.

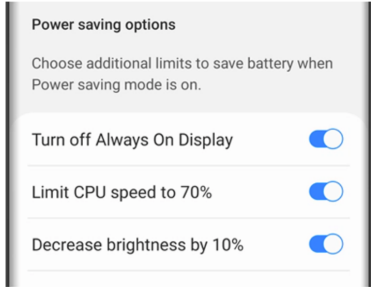


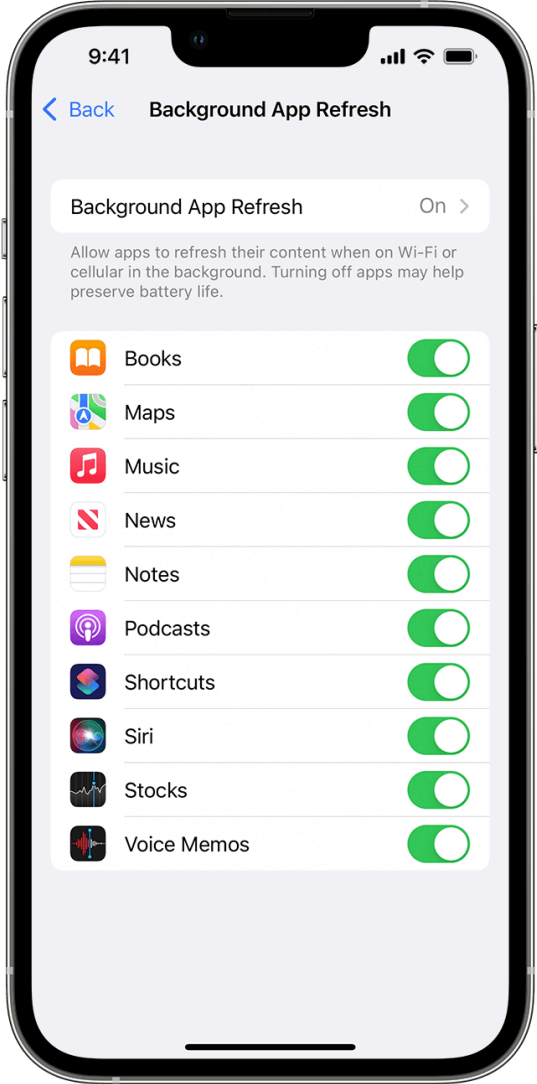
1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/; https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks</p>

Claim	Public Documentation
	<p>https://developer.apple.com/documentation/backgroundtasks/bgapprefreshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus; https://www.samsung.com/us/support/answer/ANS00079018/;</p> <div><p>Turn Data saver on or off</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/us/support/answer/ANS00078987/;</p>

Claim	Public Documentation
	<div> <p>Power saving mode ✓</p> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with three toggle switches, all of which are turned on. The options are: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>4. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a content update or a content download.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a content update or a content download.”</p> <p>See, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by “checking for updates and new content”) over wireless networks to “refresh in the background,” perform “Automatic downloads,” “Email fetch,” “temporarily pause”</p>

Claim	Public Documentation
	<p>iCloud photos, “prevent[] some apps from sending or receiving data in the background,” “apps running in the background may not receive updates,” etc. <i>See, e.g.</i>, https://support.apple.com/en-us/HT202070:</p> <h2>Use Background App Refresh</h2> <p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p> <p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p> 

Claim	Public Documentation
	https://support.apple.com/en-us/HT205234 :

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Low Power Mode reduces or affects these features:

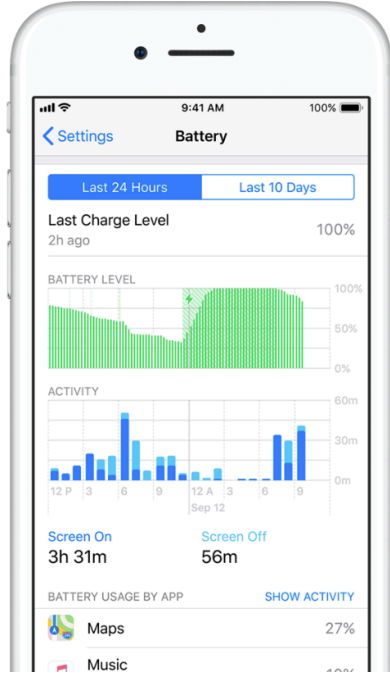
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
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- Email fetch
- Background app refresh

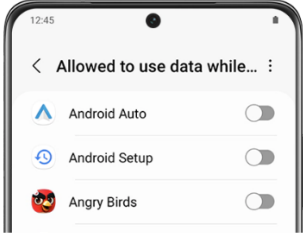
When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.

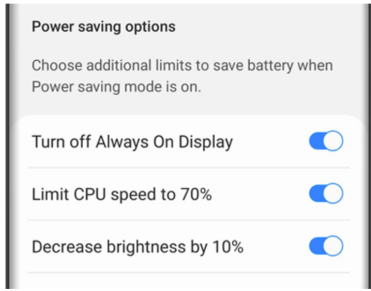


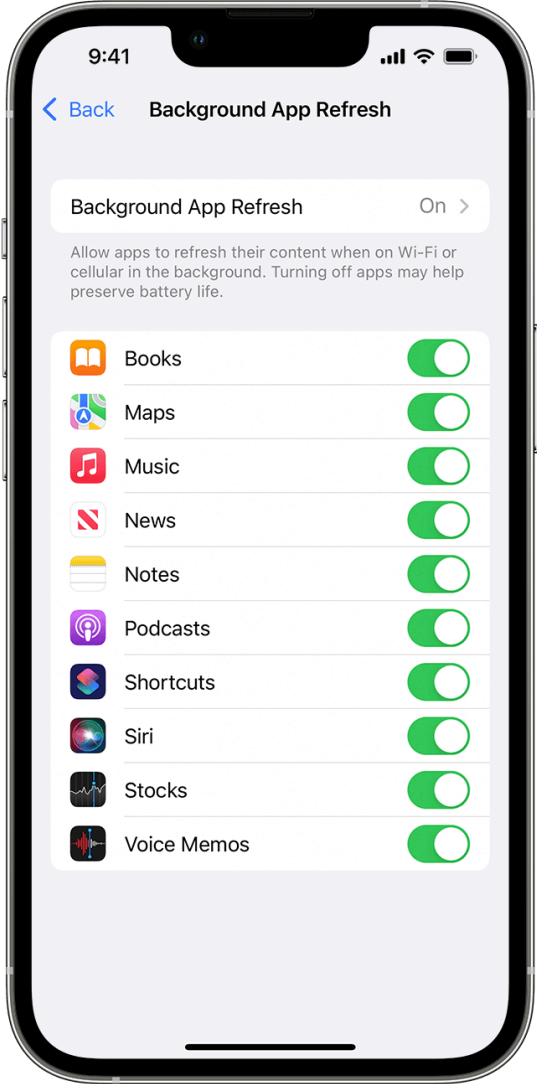
1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/; https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks</p>

Claim	Public Documentation
	<p> https://developer.apple.com/documentation/backgroundtasks/bgapprefresheshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus; https://www.samsung.com/us/support/answer/ANS00079018/; </p> <div> <p>Turn Data saver on or off</p> <p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Connections. 2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now. 3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen. 4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list. 5. Finally, tap the switch(es) next to your desired app(s).  </div> <p>; https://www.samsung.com/us/support/answer/ANS00078987/;</p>

Claim	Public Documentation
	<div> <p>Power saving mode ✓</p> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with the instruction 'Choose additional limits to save battery when Power saving mode is on.' It lists three options, all with toggle switches turned on: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>5. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with an image, music, a video, an electronic book, an e-mail attachment, a content or media subscription, a news feed, a text message, a video chat, or a combination of these, a</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with an image, music, a video, an electronic book, an e-mail attachment, a content or media subscription, a news feed, a text message, a video chat, or a combination of these.”</p> <p>See, for example, the disclosures identified for claim 1.</p> <p>As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by “checking for updates and new content”) over wireless networks to “refresh in the background,” perform “Automatic downloads,” “Email fetch,” “temporarily pause”</p>

Claim	Public Documentation																						
<p>text message, a video chat, or a combination of these.</p>	<p>iCloud photos, “prevent[] some apps from sending or receiving data in the background,” “apps running in the background may not receive updates,” etc. <i>See, e.g.</i>, https://support.apple.com/en-us/HT202070:</p> <div><h2>Use Background App Refresh</h2></div> <p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p> <p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p> <div><table border="1"><thead><tr><th>App</th><th>Status</th></tr></thead><tbody><tr><td>Books</td><td>On</td></tr><tr><td>Maps</td><td>On</td></tr><tr><td>Music</td><td>On</td></tr><tr><td>News</td><td>On</td></tr><tr><td>Notes</td><td>On</td></tr><tr><td>Podcasts</td><td>On</td></tr><tr><td>Shortcuts</td><td>On</td></tr><tr><td>Siri</td><td>On</td></tr><tr><td>Stocks</td><td>On</td></tr><tr><td>Voice Memos</td><td>On</td></tr></tbody></table></div>	App	Status	Books	On	Maps	On	Music	On	News	On	Notes	On	Podcasts	On	Shortcuts	On	Siri	On	Stocks	On	Voice Memos	On
App	Status																						
Books	On																						
Maps	On																						
Music	On																						
News	On																						
Notes	On																						
Podcasts	On																						
Shortcuts	On																						
Siri	On																						
Stocks	On																						
Voice Memos	On																						

Claim	Public Documentation
	https://support.apple.com/en-us/HT205234 :

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

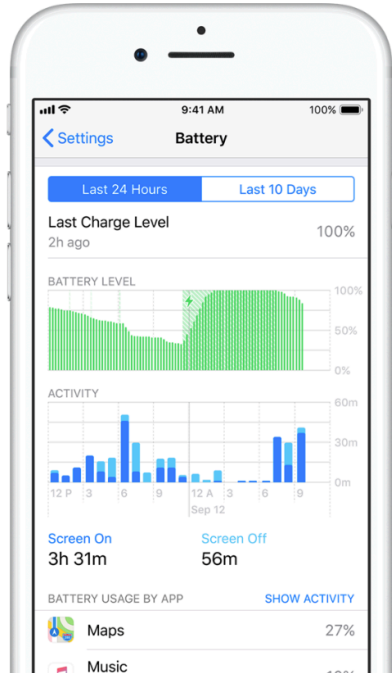
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

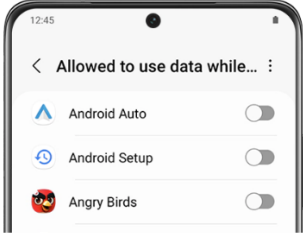
When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.

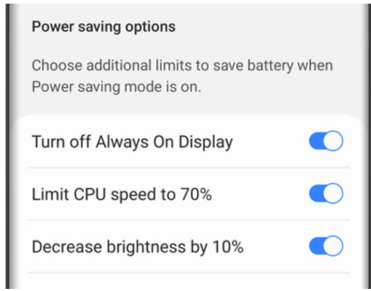


1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

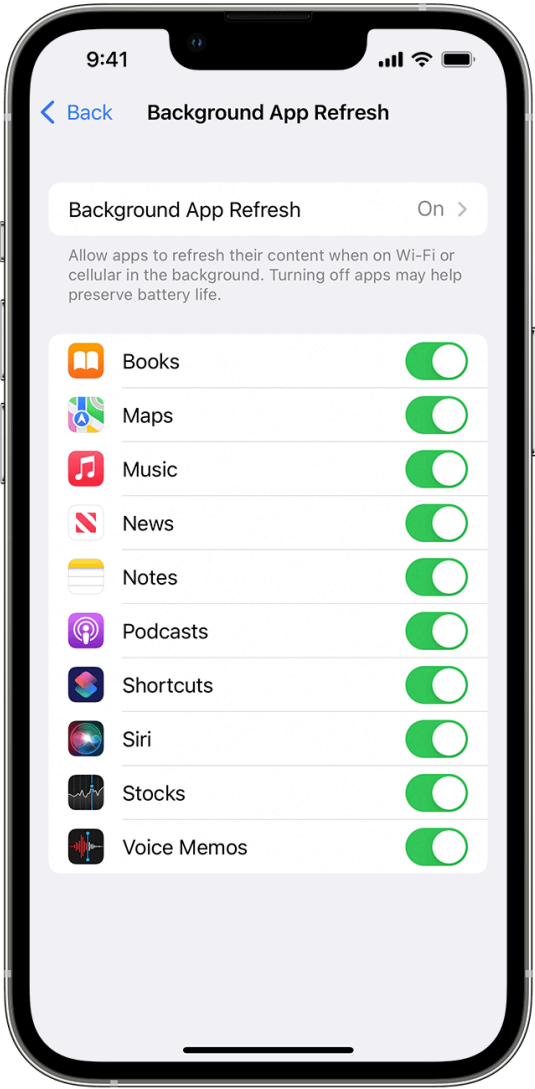
2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence/; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time/; https://developer.apple.com/documentation/backgroundtasks/; https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks/; https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks</p>

Claim	Public Documentation
	<p>https://developer.apple.com/documentation/backgroundtasks/bgapprefresheshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus; https://www.samsung.com/us/support/answer/ANS00079018/;</p> <div><p>Turn Data saver on or off</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/us/support/answer/ANS00078987/;</p>

Claim	Public Documentation
	<div> <p>Power saving mode ✓</p> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with the instruction 'Choose additional limits to save battery when Power saving mode is on.' It lists three options, all with toggle switches turned on: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby; https://developer.android.com/topic/performance/appstandby; https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler.</p>
<p>6. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a device application or widget, a device operating system function, a file download, streaming media, a</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise a communication associated with a device application or widget, a device operating system function, a file download, streaming media, a software update, a firmware update, a website, a connection to a server, a web browser, or a synchronization service.”</p> <p><i>See, for example, the disclosures identified for claim 1.</i></p>

Claim	Public Documentation
software update, a firmware update, a website, a connection to a server, a web browser, or a synchronization service.	As a further example, the Accused Instrumentalities comprise prospective or successful communications by applications or portions of applications (e.g., by “checking for updates and new content”) over wireless networks to “refresh in the background,” perform “Automatic downloads,” “Email fetch,” “temporarily pause” iCloud photos, “prevent[] some apps from sending or receiving data in the background,” “apps running in the background may not receive updates,” etc. <i>See, e.g.,</i> https://support.apple.com/en-us/HT202070 :

Claim	Public Documentation
	<div><h2>Use Background App Refresh</h2></div> <div><p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p></div> <div><p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p></div> <div><p>https://support.apple.com/en-us/HT205234:</p></div> <div></div>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

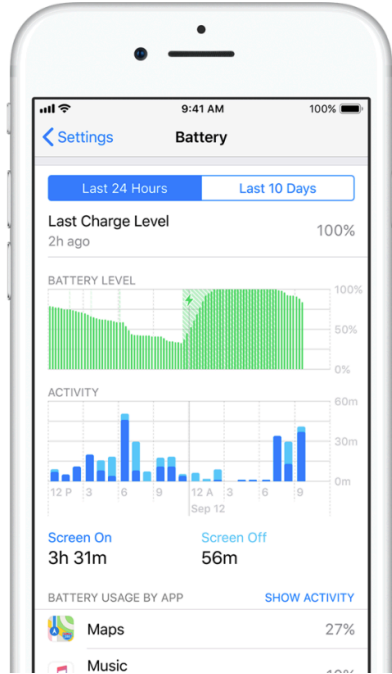
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

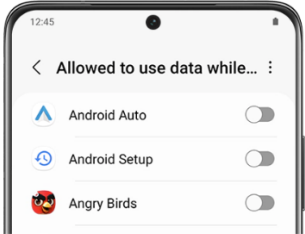
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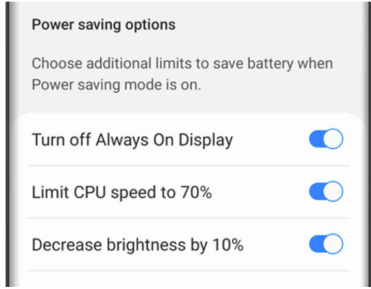


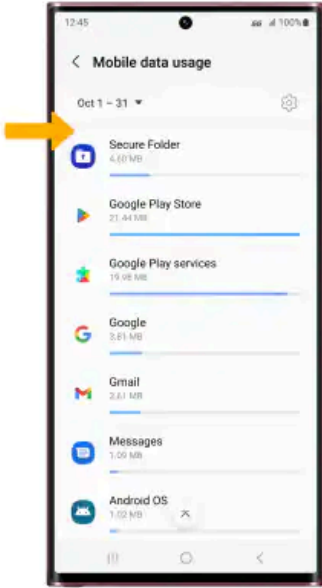
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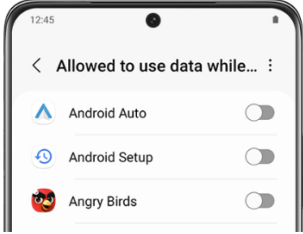
2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

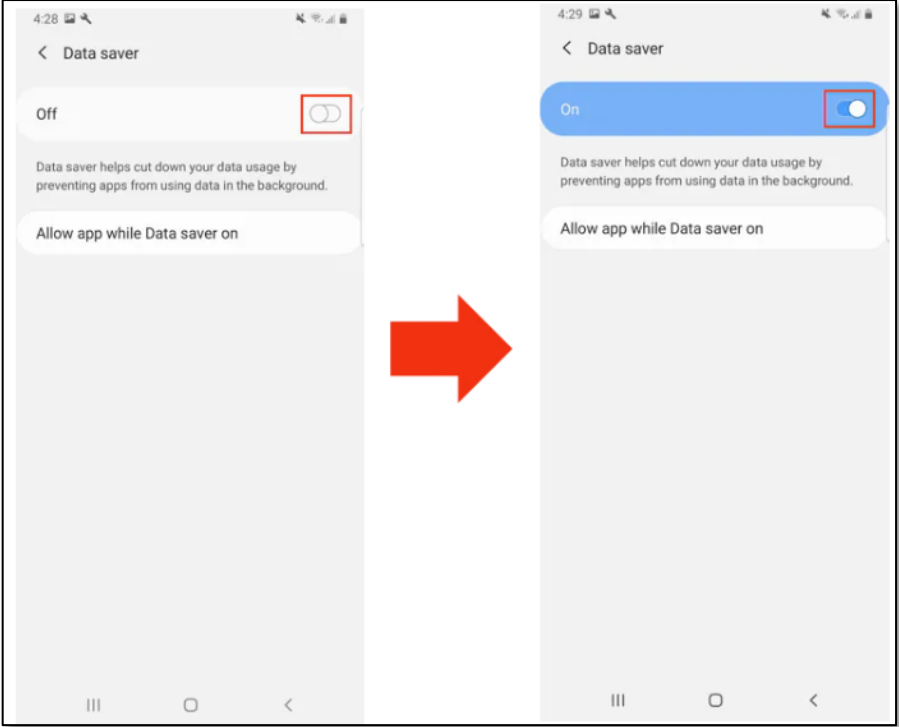
Claim	Public Documentation
	<p>https://www.apple.com/batteries/maximizing-performance/:</p> <h2>View Battery Usage information</h2> <p>With iOS, you can easily manage your device's battery life, because you can see the proportion of your battery used by each app (unless the device is charging). To view your usage, go to Settings > Battery.</p> <p>Here are the messages you may see listed below the apps you've been using:</p> <p>Background Activity. This indicates that the battery was used by the app while it was in the background — that is, while you were using another app.</p> <ul style="list-style-type: none"> • To improve battery life, you can turn off the feature that allows apps to refresh in the background. Go to Settings > General > Background App Refresh and select Wi-Fi, Wi-Fi & Cellular Data, or Off to turn off Background App Refresh entirely. • If the Mail app lists Background Activity, you can choose to fetch data manually or increase the fetch interval. Go to Settings > Accounts & Passwords > Fetch New Data.  <p>; https://developer.apple.com/documentation/avfoundation/avplayer; https://developer.apple.com/documentation/avfoundation/media_playback/configuring_your_app_for_media_playback; https://support.apple.com/en-us/HT207122; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/about_the_background_execution_sequence; https://developer.apple.com/documentation/uikit/app_and_environment/scenes/preparing_your_ui_to_run_in_the_background/extending_your_app_s_background_execution_time; https://developer.apple.com/documentation/backgroundtasks; https://developer.apple.com/documentation/watchkit/background_execution/using_background_tasks;</p>

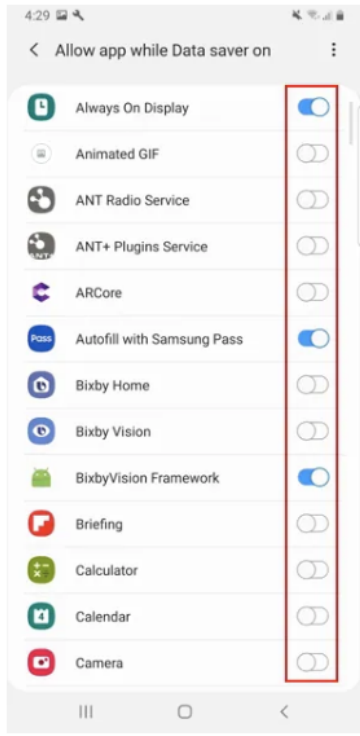
Claim	Public Documentation
	<p>https://developer.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_background/using_background_tasks_to_update_your_app/; https://developer.apple.com/documentation/backgroundtasks/refreshing_and_maintaining_your_app_using_background_tasks/; https://developer.apple.com/documentation/backgroundtasks https://developer.apple.com/documentation/backgroundtasks/bgapprefreshtask; https://developer.apple.com/documentation/backgroundtasks/bgprocessingtask; https://developer.apple.com/documentation/backgroundtasks/bgtask; https://developer.apple.com/documentation/uikit/uiapplication/1622976-backgroundfetchintervalminimum/; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus/; https://www.samsung.com/us/support/answer/ANS00079018/;</p> <div><p>Turn Data saver on or off ✓</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/us/support/answer/ANS00078987/;</p>

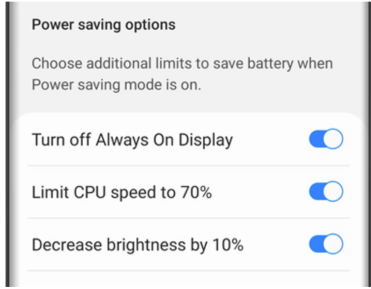
Claim	Public Documentation
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<p>7. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify an intention to launch or start the first software component.</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify an intention to launch or start the first software component.”</p> <p><i>See, for example, the disclosures identified for claim 1.</i></p>


Claim	Public Documentation
	<p>As a further example, the Accused Instrumentalities comprise identifying an intention to launch or start the first software component. <i>See, e.g.,</i> https://www.att.com/device-support/article/wireless/KM1476382/Samsung/SamsungSMS908U:</p> <p>View data usage by app</p> <p>From the Mobile data usage screen, scroll to view data usage broken down by application.</p> <p><i>Note: To restrict apps from using data while running in the background, swipe down from the Notification bar, then select the Settings icon > Connections > Data usage > Data saver > Data saver switch. Your myAT&T account is also another way to manage your wireless usage.</i></p>  <p>; https://www.samsung.com/us/support/answer/ANS00079018/:</p>

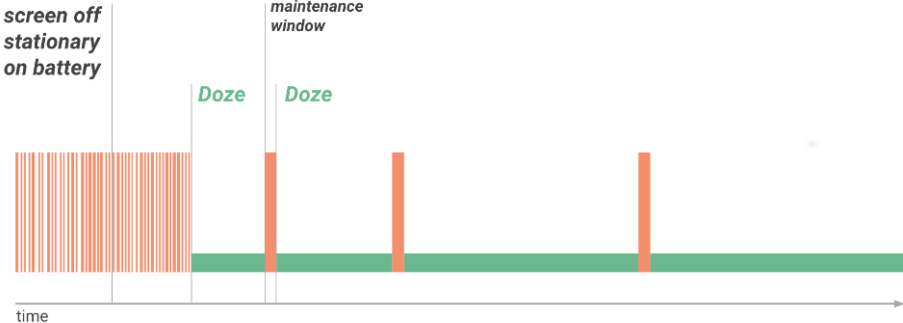
Claim	Public Documentation
	<div><div>Turn Data saver on or off</div><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> 

Claim	Public Documentation
	

Claim	Public Documentation
	<p>6 Toggle the switches on next to the apps that you need to receive notifications from all the time. Email, Messages, Messenger, Instagram and Facebook are all popular options to allow unrestricted data access..</p>  <p>; https://www.samsung.com/us/support/answer/ANS00078987/:</p>

Claim	Public Documentation
	<div> <h3>Power saving mode ✓</h3> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with the instruction 'Choose additional limits to save battery when Power saving mode is on.' Below this are three toggle switches, all of which are turned on: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/basics/network-ops/data-saver:</p> <div> <h3>Optimize network data usage 🔖</h3> <p>Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.</p> <p>When a user enables Data Saver in Settings and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.</p> <p>Android 7.0 (API level 24) extends the <code>ConnectivityManager</code> API to provide apps with a way to retrieve the user's Data Saver preferences and monitor preference changes. It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.</p> </div>

Claim	Public Documentation
	<div><h3>Check data saver preferences</h3><p>On Android 7.0 (API level 24) and higher, apps can use the <code>ConnectivityManager</code> API to determine what data usage restrictions are being applied. The <code>getRestrictBackgroundStatus()</code> method returns one of the following values:</p><p><code>RESTRICT_BACKGROUND_STATUS_DISABLED</code></p><p>Data Saver is disabled.</p><p><code>RESTRICT_BACKGROUND_STATUS_ENABLED</code></p><p>The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.</p><p><code>RESTRICT_BACKGROUND_STATUS_WHITELISTED</code></p><p>The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.</p><p>Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses <code>ConnectivityManager.isActiveNetworkMetered()</code> and <code>ConnectivityManager.getRestrictBackgroundStatus()</code> to determine how much data the app should use:</p></div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby;</p> <div><h2>Optimize for Doze and App Standby </h2><p>Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. <i>Doze</i> reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. <i>App Standby</i> defers background network activity for apps with which the user has not recently interacted.</p><p>While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in Power Management Restrictions.</p><p>Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.</p></div>

Claim	Public Documentation
	<div> <h3>Understanding Doze</h3> <p>If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.</p> <p>Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this <i>maintenance window</i>, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.</p>  <p>Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.</p> </div> <div> <p>At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.</p> <p>As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.</p> </div> <div> <p>The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as tickles or notifications. If your app requires a persistent connection to the network to receive messages, you should use Firebase Cloud Messaging (FCM) if possible.</p> </div> <p>; https://developer.android.com/topic/performance/appstandby:</p>

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.

★ **Note:** Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [UsageStatsManager.getAppStandbyBucket\(\)](#).

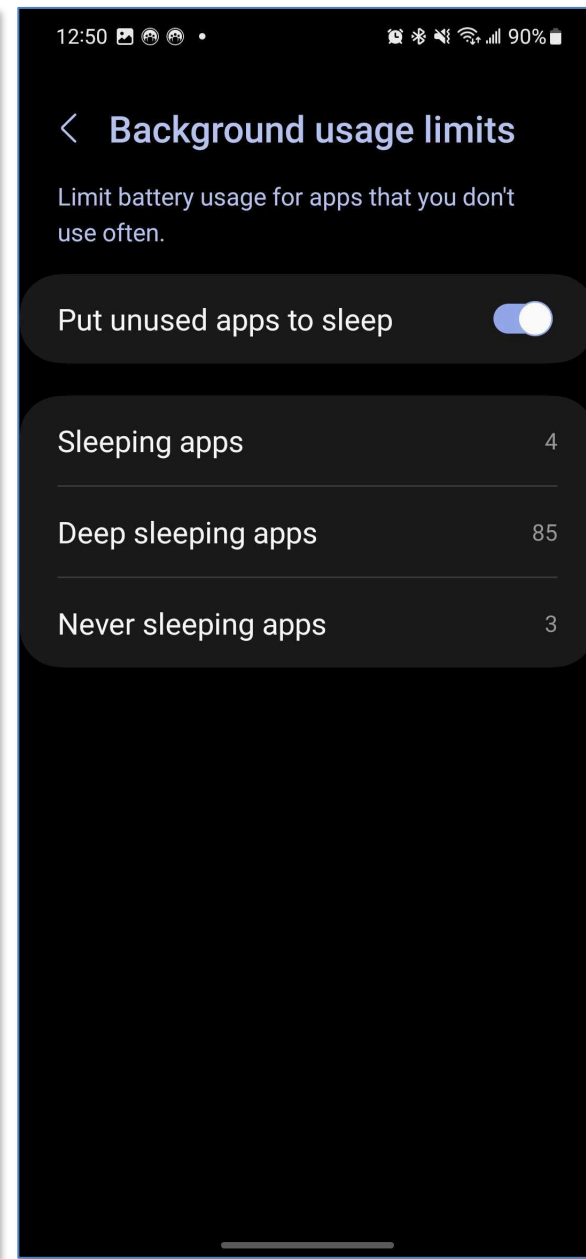
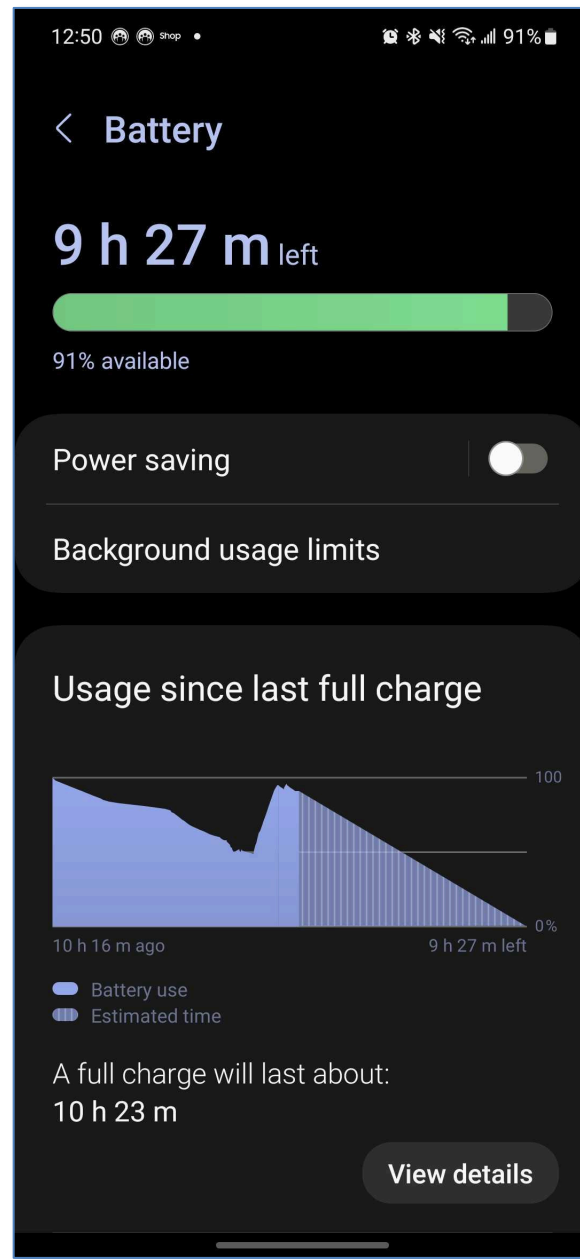
The buckets are:

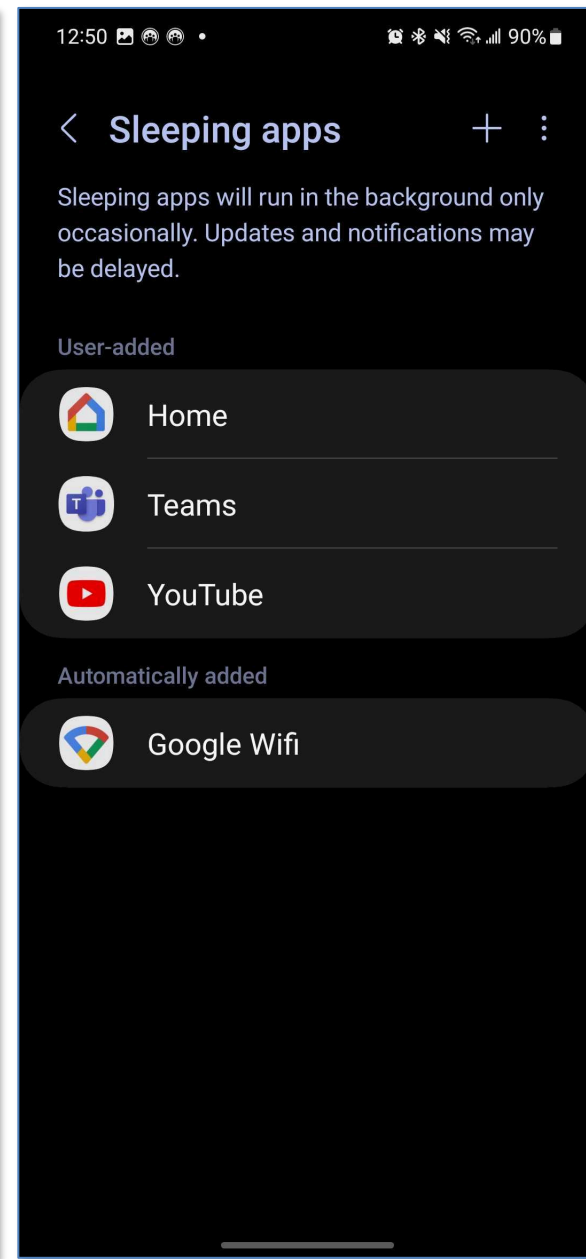
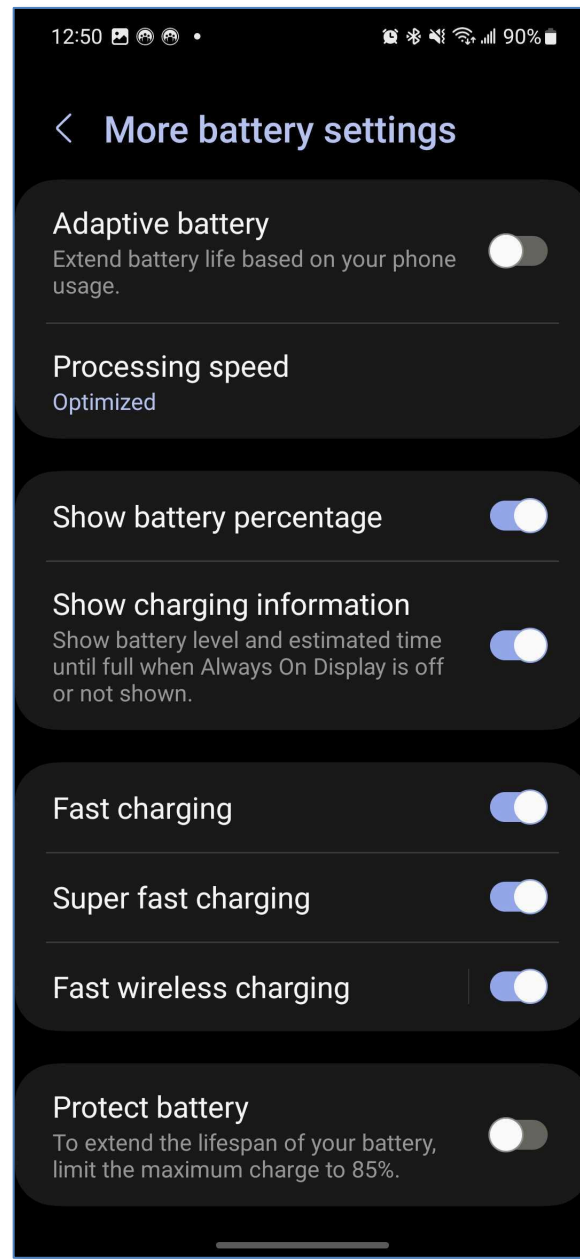
1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

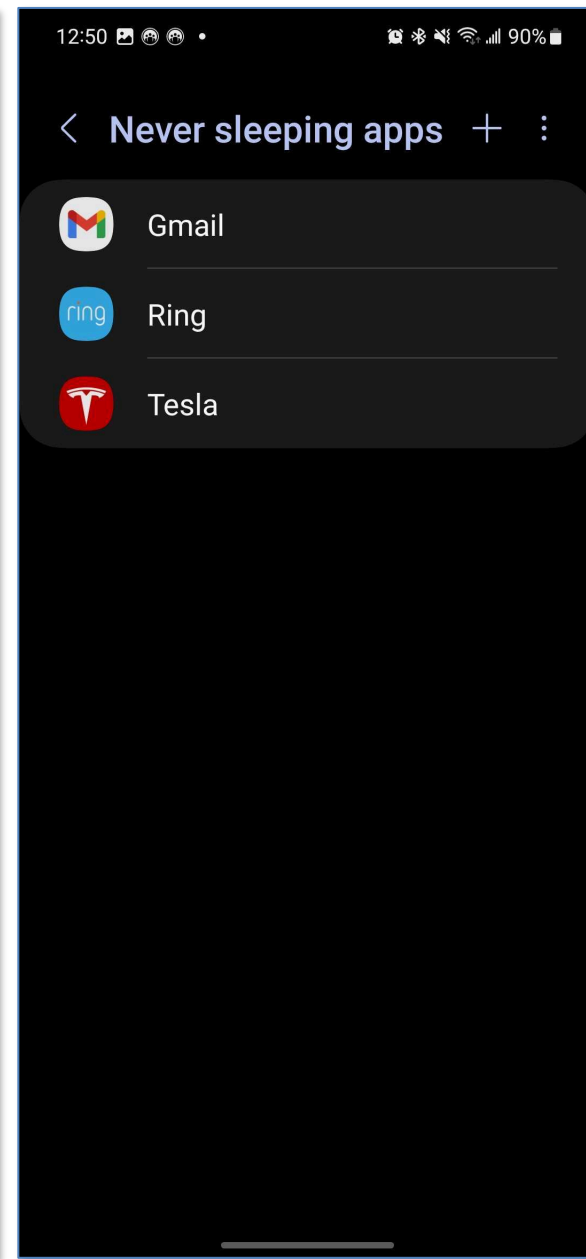
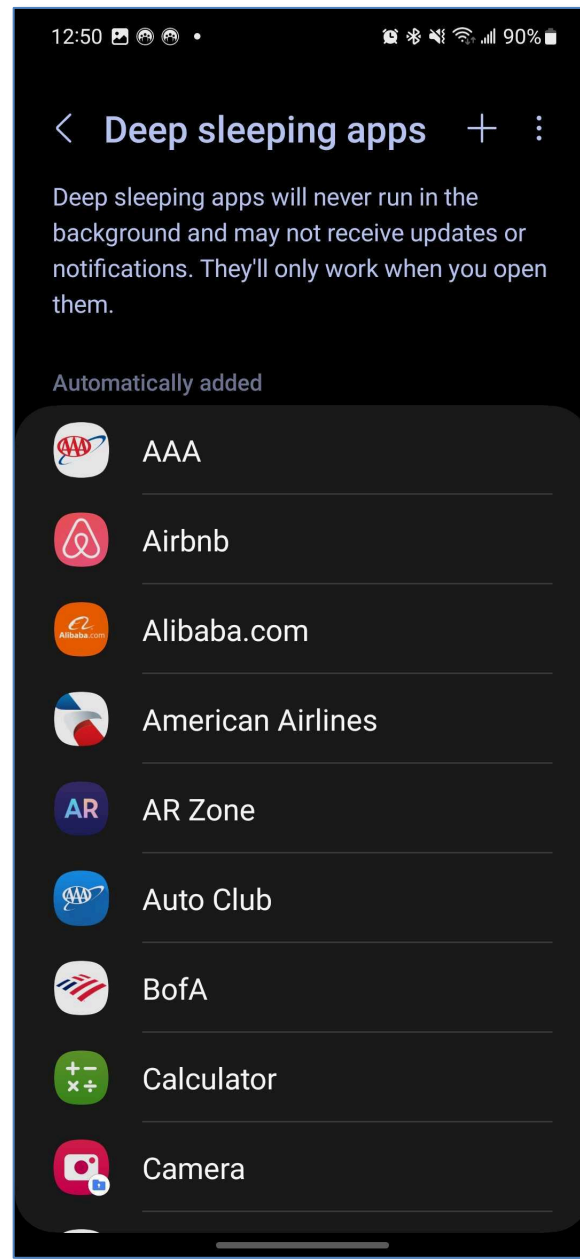
In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.

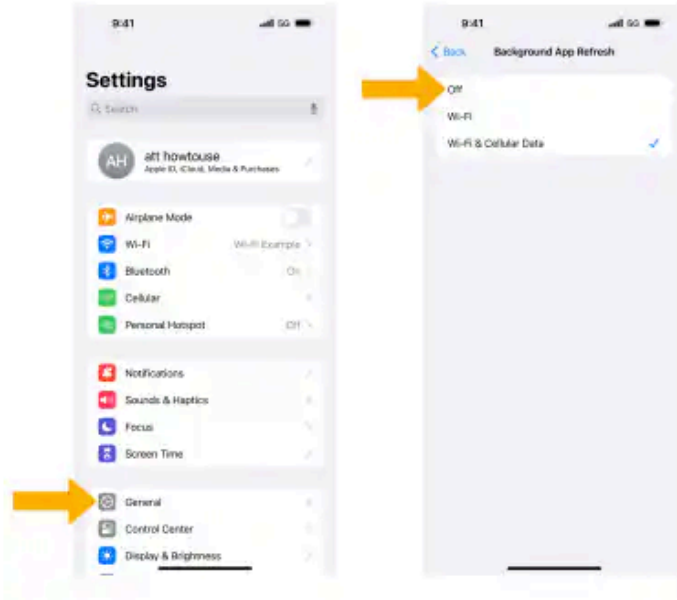
Claim	Public Documentation
	<p> https://developer.android.com/topic/performance/power/power-details; https://developer.android.com/topic/performance/background-optimization; https://developer.android.com/reference/android/app/job/JobScheduler; https://developer.android.com/guide/background/persistent; https://developer.android.com/guide/components/activities/process-lifecycle; </p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>1. A foreground process is one that is required for what the user is currently doing. Various application components can cause its containing process to be considered foreground in different ways. A process is considered to be in the foreground if any of the following conditions hold:</p> <ul style="list-style-type: none"> • It is running an Activity at the top of the screen that the user is interacting with (its onResume() method has been called). • It has a BroadcastReceiver that is currently running (its BroadcastReceiver.onReceive() method is executing). • It has a Service that is currently executing code in one of its callbacks (Service.onCreate(), Service.onStart(), or Service.onDestroy()). <p>There will only ever be a few such processes in the system, and these will only be killed as a last resort if memory is so low that not even these processes can continue to run. Generally, at this point, the device has reached a memory paging state, so this action is required in order to keep the user interface responsive.</p> </div> <p>; https://developer.android.com/guide/background:</p>



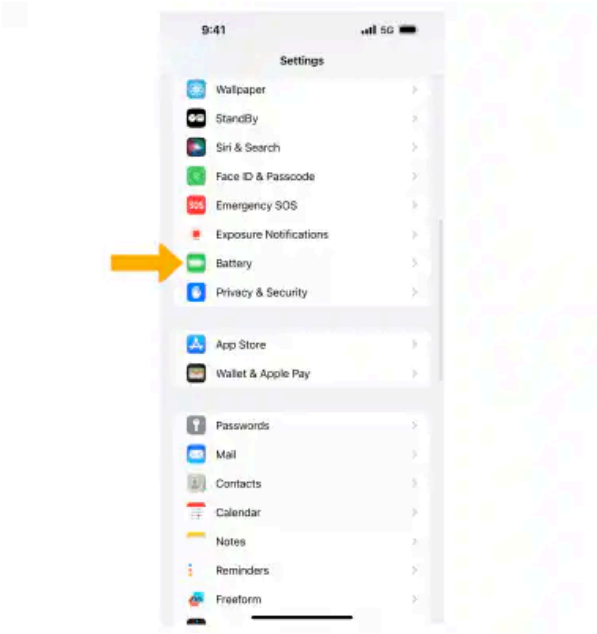
Claim	Public Documentation
	<div><p>Definition of background work</p><p>An app is running in the <i>background</i> when both the following conditions are satisfied:</p><ul style="list-style-type: none">• None of the app's activities are currently visible to the user.• The app isn't running any foreground services that started while an activity from the app was visible to the user.<p>Otherwise, the app is running in the <i>foreground</i>.</p></div> <p><i>see also</i> the exemplary screenshots below:</p>





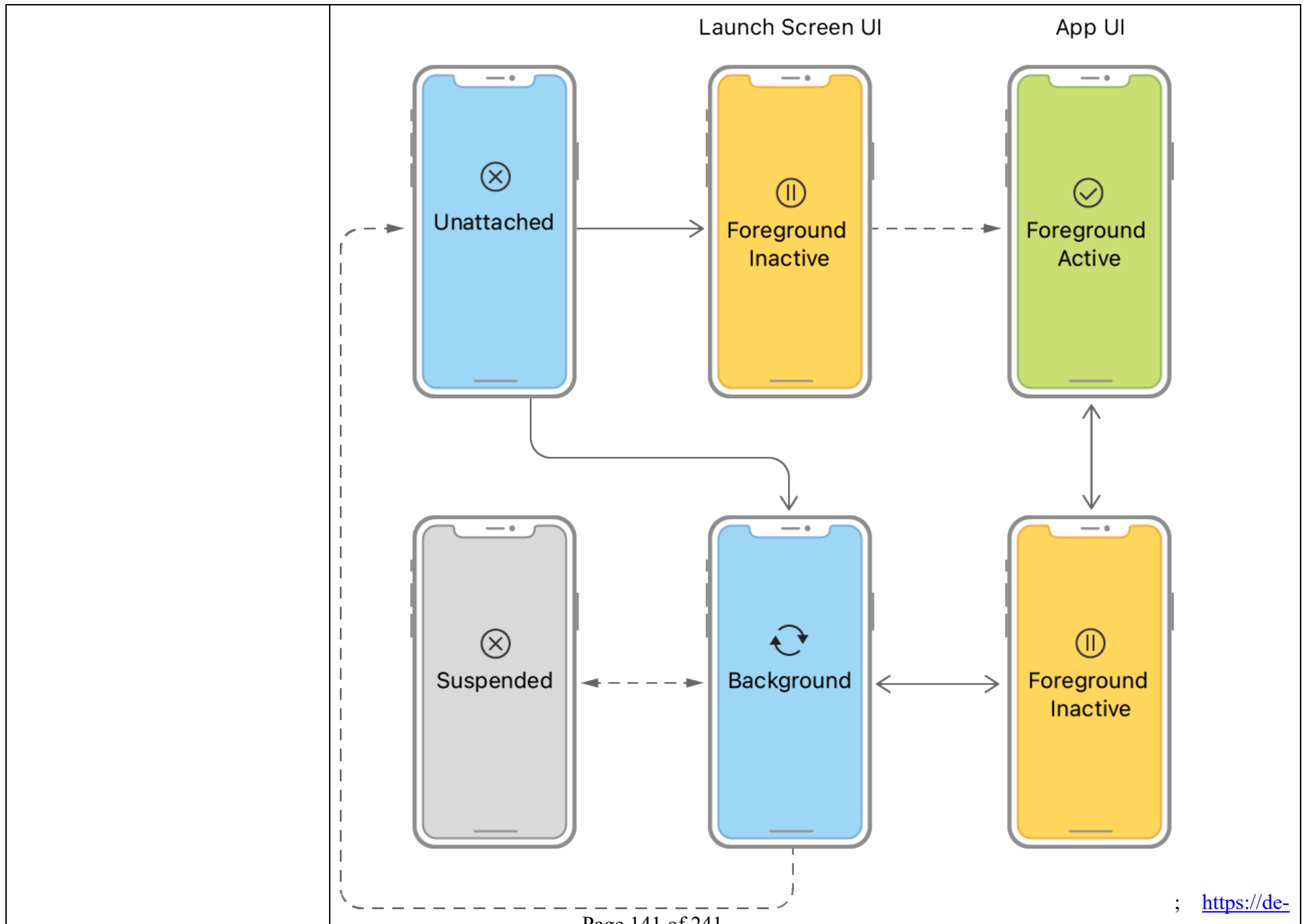


Claim	Public Documentation
	<p>See also, e.g., https://www.att.com/device-support/article/wireless/000097086/Apple/iPhone15Pro/:</p> <p>TURN OFF BACKGROUND APP REFRESH: From the Settings screen, select General > Background App Refresh > Background App Refresh > Off.</p>  <p>The image contains two screenshots from an iPhone. The first screenshot shows the 'Settings' app with the 'General' option highlighted by a yellow arrow. The second screenshot shows the 'Background App Refresh' settings page, where the 'Off' option is selected by a yellow arrow. The 'Background App Refresh' page also shows 'Wi-Fi' and 'Wi-Fi & Cellular Data' options.</p>

Claim	Public Documentation
	<p>Enable Low Power Mode</p> <p>1. From the home screen, select the  Settings app.</p> <p><i>Note: iPhone automatically prompts you to turn on Low Power mode when you have 20% battery life remaining.</i></p> <p>2. Scroll to and select Battery. Select the  Low Power Mode switch to place it in the On position.</p> <p><i>Note: When Low Power mode is on, the Battery icon turns yellow and the battery percentage is displayed in the status bar. Fetch, background app refresh, automatic downloads, and some visual effects are reduced or turned off. You can view your app usage for the Last 24 Hours or the Last 5 Days. Select the desired option to view.</i></p>  <p>; https://developer.apple.com/documentation/uikit/uiapplication/1623003-applicationstate:</p>

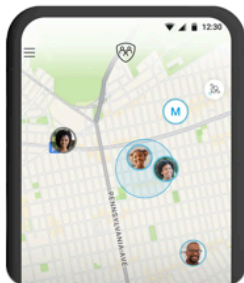
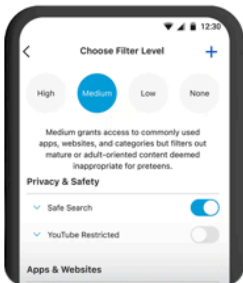
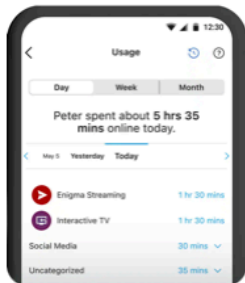
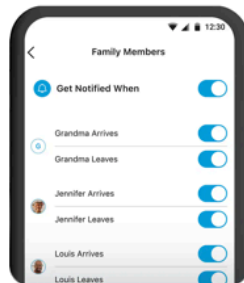
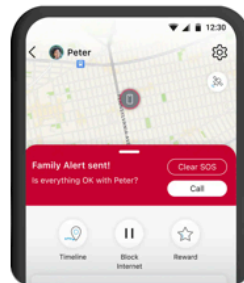
Claim	Public Documentation
	<div><div>Instance Property</div><div><h1>applicationState</h1><p>The app's current state, or that of its most active scene.</p><div><div>iOS 4.0+</div><div>iPadOS 4.0+</div><div>Mac Catalyst 13.1+</div><div>tvOS 9.0+</div><div>visionOS 1.0+ Beta</div></div><div><pre>var applicationState: UIApplication.State { get }</pre></div></div><div><h2>Discussion</h2><p>The behavior of this property depends on whether your app is scene-based.</p><p>In a scene-based app, this property takes the value of the most active scene, which it determines from each scene's <code>activationState</code> property. A scene-based app launches in the background state, and transitions between its states as scenes connect, change their states, and disconnect. For scene-based apps, use <code>UISceneDelegate</code> to respond to changes in an individual scene's life cycle.</p><p>In a sceneless app, the property's value is always the app's current state. The app is inactive at launch, and then is generally in either an active or background state. The app may become inactive for a short period — for example, when transitioning between active and background states, when the system presents an alert in front of it, or when the system displays the application switcher. For sceneless apps, use <code>UIApplicationDelegate</code> to respond to the app's life cycle changes.</p><p>; https://developer.apple.com/documentation/uikit/app_and_environment/managing_your_app_s_life_cycle:</p></div></div>

Claim	Public Documentation
	<div><h1>Managing Your App's Life Cycle</h1><p>Respond to system notifications when your app is in the foreground or background, and handle other significant system-related events.</p></div> <div><h2>Overview</h2></div> <div><p>The current state of your app determines what it can and cannot do at any time. For example, a foreground app has the user's attention, so it has priority over system resources, including the CPU. By contrast, a background app must do as little work as possible, and preferably nothing, because it is offscreen. As your app changes from state to state, you must adjust its behavior accordingly.</p></div>



Claim	Public Documentation
	<p>veloper.apple.com/documentation/uikit/windows_and_screens/scenes/preparing_your_ui_to_run_in_the_foreground/:</p> <div><h2>Preparing Your UI to Run in the Foreground</h2><p>Configure your app to appear onscreen.</p></div> <h3>Overview</h3> <p>Use foreground transitions to prepare your app's UI to appear onscreen. An app's transition to the foreground is usually in response to a user action. For example, when the user taps the app's icon, the system launches the app and brings it to the foreground. Use a foreground transition to update your app's UI, acquire resources, and start the services you need to handle user requests.</p>

Claim	Public Documentation
	<h3>Configure Your User Interface and Initial Tasks at Activation</h3> <p>The system moves your app to the active state immediately before displaying the app's UI. Activation is a good time to configure your app's UI and runtime behavior; specifically:</p> <ul style="list-style-type: none"><li>• Show your app's windows, if needed.<li>• Change the currently visible view controller, if needed.<li>• Update the data values and state of views and controls.<li>• Display controls to resume a paused game.<li>• Start or resume any dispatch queues that you use to execute tasks.<li>• Update data source objects.<li>• Start timers for periodic tasks. <p>Put your configuration code in one of the following methods:</p> <ul style="list-style-type: none"><li>• For a scene-based UI—The <code>sceneDidBecomeActive(_:)</code> method of the appropriate scene delegate object.<li>• For all other apps—The <code>applicationDidBecomeActive(_:)</code> method of your app delegate object. <p>Activation is also the time to put finishing touches on your UI before displaying it to the user. Don't run any code that might block your activation method. Instead, make sure you have everything you need in advance. For example, if your data changes frequently outside of the app, use background tasks to fetch updates from the network before your app returns to the foreground. Otherwise, be prepared to display existing data while you fetch changes asynchronously.</p> <p><i>See also, e.g.,</i> <a href="https://www.att.com/security/secure-family-app/">https://www.att.com/security/secure-family-app/:</p>

Claim	Public Documentation
	<div> <h2>Top safety features</h2> </div> <div>  </div> <div> <h3>Location tracking</h3> </div> <div> <p>Track family member's devices in real-time on an interactive map, or track their location history on a breadcrumb trail map.</p> </div> <div> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  </div> <div> <h3>Control what they access</h3> </div> <div> <p>Filter or block apps and online content based on age-appropriate settings and set time limits for internet access and app usage.</p> </div> <div>  </div> <div> <h3>Double check their online activities</h3> </div> <div> <p>View your child's internet and app usage for the last 30 days, and temporarily halt their internet access when it's time for homework, bed, or dinner.</p> </div> <div>  </div> <div> <h3>Set location alerts</h3> </div> <div> <p>Get alerts when your child enters or leaves a saved area, or schedule alerts for additional peace of mind.</p> </div> <div> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  </div> <div> <h3>SOS alerts</h3> </div> <div> <p>One press of a button sends an SOS alert to the whole family.</p> </div>
<p>8. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify: an application identifier associated with the service usage activity or the first software com-</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify: an application identifier associated with the service usage activity or the first software component, an operating system function identifier associated with the service usage activity or the first software component, an aggregate service activity identifier, a component service activity identifier, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6.</i></p>

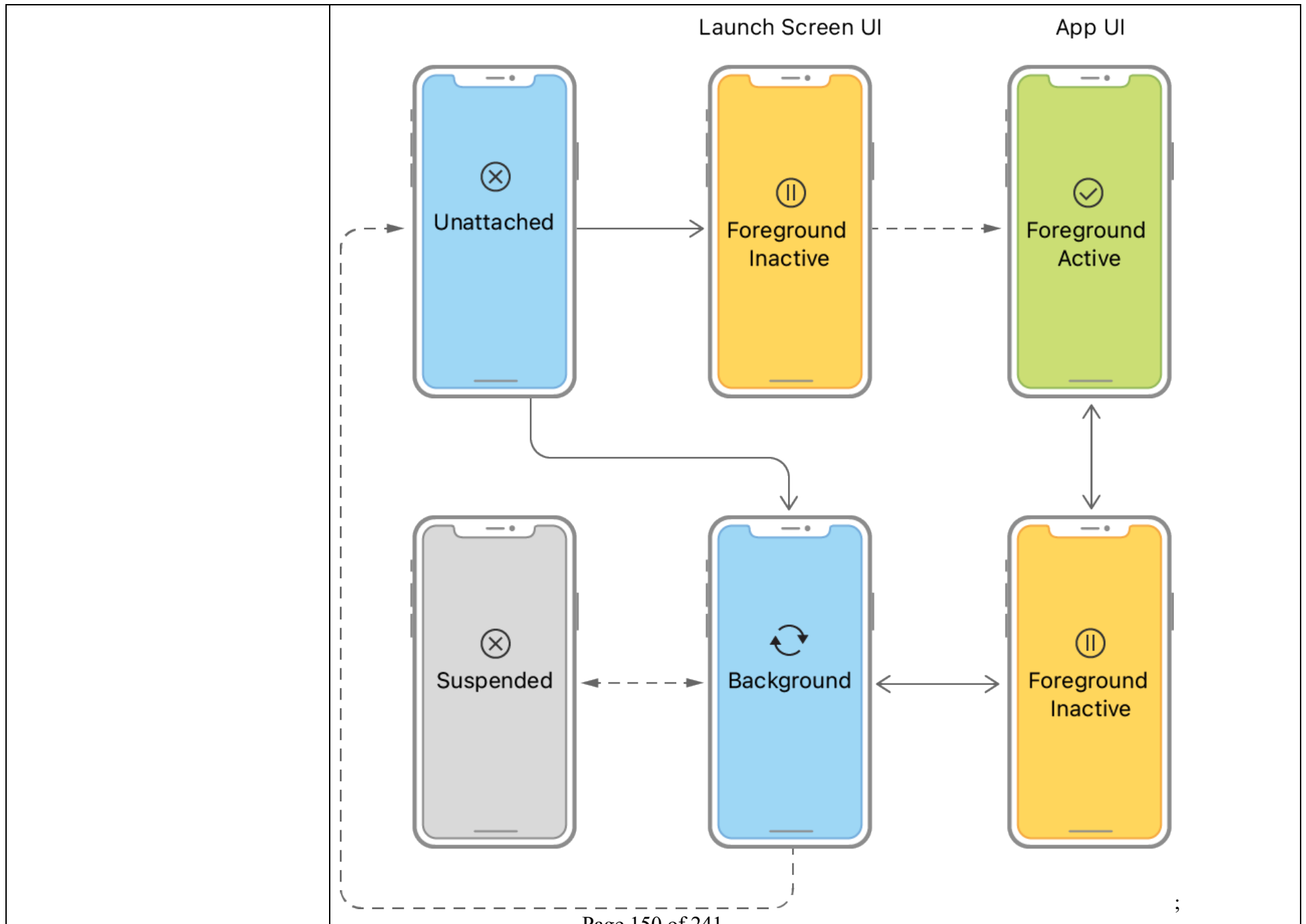
Claim	Public Documentation
<p>ponent, an operating system function identifier associated with the service usage activity or the first software component, an aggregate service activity identifier, a component service activity identifier, or a combination of these.</p>	<p>As a further example, the Accused Instrumentalities comprise application identifiers, processes, delegates, objects, scenes, task identifiers, etc. <i>See, e.g.,</i> https://developer.android.com/build/configure-app-module:</p> <h3>Set the application ID</h3> <p>Every Android app has a unique application ID that looks like a Java or Kotlin package name, such as <i>com.example.myapp</i>. This ID uniquely identifies your app on the device and in the Google Play Store.</p> <div><p>★ Important: Once you publish your app, you should never change the application ID. If you change the application ID, Google Play Store treats the upload as a completely different app. If you want to upload a new version of your app, you must use the same application ID and signing certificate as when originally published.</p></div> <p>; https://developer.android.com/reference/android/app/job/JobInfo:</p>

Claim	Public Documentation
	<div><div>Android Developers > Develop > Reference</div><div>Was this helpful?  </div><div><div>JobInfo </div><div>Added in API level 21</div><div><div>Kotlin</div> <div>Java</div></div><div><pre>public class JobInfo extends Object implements Parcelable</pre><div><div>java.lang.Object</div><div>↳ android.app.job.JobInfo</div></div></div><div><p>Container of data passed to the <code>JobScheduler</code> fully encapsulating the parameters required to schedule work against the calling application. These are constructed using the <code>JobInfo.Builder</code>. The goal here is to provide the scheduler with high-level semantics about the work you want to accomplish.</p><p>Prior to Android version <code>Build.VERSION_CODES#Q</code>, you had to specify at least one constraint on the JobInfo object that you are creating. Otherwise, the builder would throw an exception when building. From Android version <code>Build.VERSION_CODES#Q</code> and onwards, it is valid to schedule jobs with no constraints.</p></div></div></div>

Claim	Public Documentation
	<div><div>getId</div><div>Added in API level 21</div></div> <div><pre>public int getId ()</pre></div> <div><p>Unique job id associated with this application (uid). This is the same job ID you supplied in the <code>Builder</code> constructor.</p></div> <div><p>; https://developer.android.com/guide/components/services; https://developer.apple.com/help/account/manage-identifiers/register-an-app-id/:</p></div> <div><p>Manage identifiers</p></div> <div><h2>Register an App ID</h2></div> <div><p>An <i>App ID</i> identifies your app in a provisioning profile. It is a two-part string used to identify one or more apps from a single development team. There are two types of App IDs: an explicit App ID, used for a single app, and a wildcard App ID, used for a set of apps. The app capabilities enabled for an App ID serve as an allow list of the capabilities one or more apps may use. You can enable app capabilities when you create an App ID or modify these settings later. In-App Purchase is enabled by default for an explicit App ID. Beginning with Xcode 11.4, a single App ID can be used to build iOS, macOS, tvOS, and watchOS apps.</p></div> <div><p>Note: In order to configure the capabilities an app uses, you need to add them to a target in the Xcode project.</p></div>

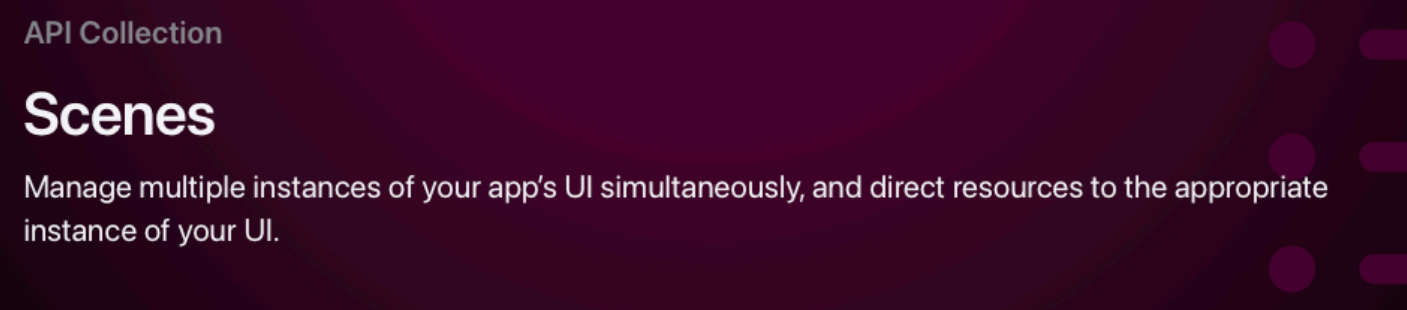
Claim	Public Documentation
	<ol style="list-style-type: none"> 1. In Certificates, Identifiers & Profiles, click Identifiers in the sidebar, then click the add button (+) on the top left. 2. Select App IDs from the list of options and click continue. 3. From the options, confirm App ID type is automatically selected, then click Continue. 4. Enter a name or description for the App ID in the Description field. 5. To create an explicit App ID, select Explicit App ID and enter the app's bundle ID in the Bundle ID field. The explicit App ID you enter here should match the bundle ID you entered in the target's Summary pane in Xcode. 6. To create a wildcard App ID, select Wildcard App ID and enter a bundle ID suffix in the Bundle ID field. 7. Select the corresponding checkboxes to enable the app capabilities you want to use. The capabilities available to your type of app and program membership appear under Capabilities. A checkbox is disabled if the technology requires an explicit App ID and you're creating a wildcard App ID, or the technology is enabled by default. Not all capabilities are eligible for all platforms. 8. Click Continue, then review the registration information, then click Register. <p>; https://developer.apple.com/help/account/manage-identifiers/register-an-app-id-for-app-clips; https://developer.apple.com/help/account/manage-identifiers/register-a-services-id; https://developer.apple.com/help/account/manage-identifiers/register-an-app-group; https://developer.apple.com/help/account/manage-identifiers/create-an-icloud-container; https://developer.apple.com/documentation/uikit/app_and_environment/managing_your_app_s_life_cycle;</p>

Claim	Public Documentation
	<div><h1>Managing Your App's Life Cycle</h1><p>Respond to system notifications when your app is in the foreground or background, and handle other significant system-related events.</p></div> <div><h2>Overview</h2></div> <div><p>The current state of your app determines what it can and cannot do at any time. For example, a foreground app has the user's attention, so it has priority over system resources, including the CPU. By contrast, a background app must do as little work as possible, and preferably nothing, because it is offscreen. As your app changes from state to state, you must adjust its behavior accordingly.</p></div>

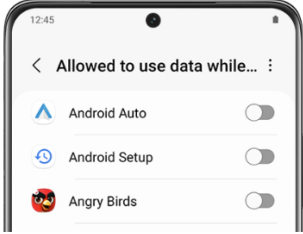


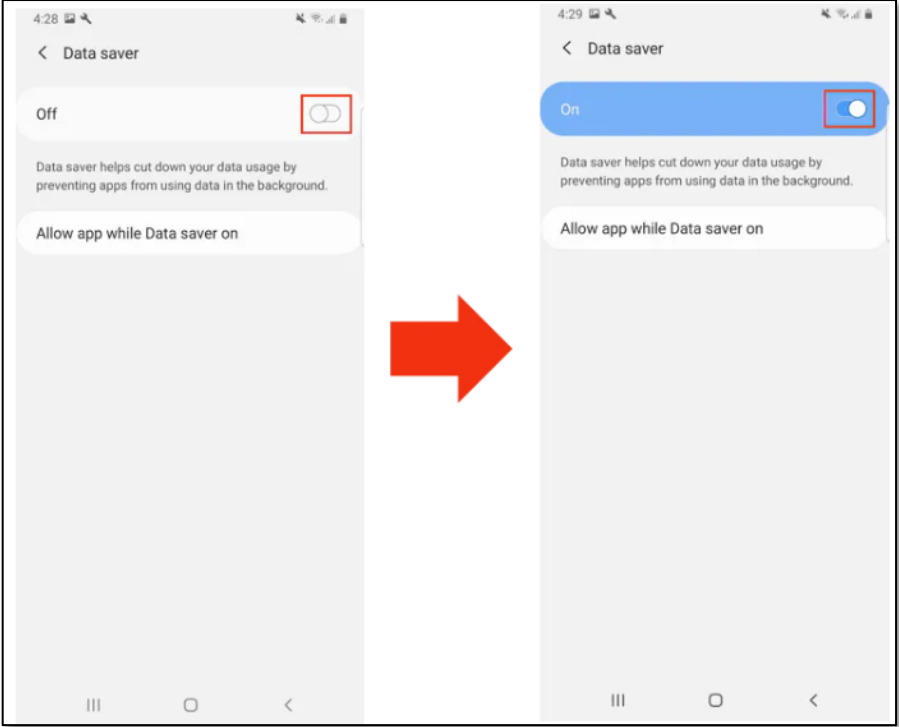
Claim	Public Documentation
	<div>Article</div> <div><h2>Managing your app's life cycle</h2></div> <div><p>Respond to system notifications when your app is in the foreground or background, and handle other significant system-related events.</p></div> <div><h3>Overview</h3></div> <div><p>The current state of your app determines what it can and can't do at any time. For example, a foreground app has the user's attention, so it has priority over system resources, including the CPU. By contrast, a background app must do as little work as possible, and preferably nothing, because it's offscreen. As your app changes from state to state, you must adjust its behavior accordingly.</p></div> <div><p>When your app's state changes, UIKit notifies you by calling methods of the appropriate delegate object:</p></div> <div><ul style="list-style-type: none">• In iOS 13 and later, use <code>UISceneDelegate</code> objects to respond to life-cycle events in a scene-based app.• In iOS 12 and earlier, use the <code>UIApplicationDelegate</code> object to respond to life-cycle events.</div> <div><p>Note</p></div> <div><p>If you enable scene support in your app, iOS always uses your scene delegates in iOS 13 and later. In iOS 12 and earlier, the system uses your app delegate.</p></div> <div><p>https://developer.apple.com/documentation/uikit/uibackgroundtaskidentifier:</p></div>

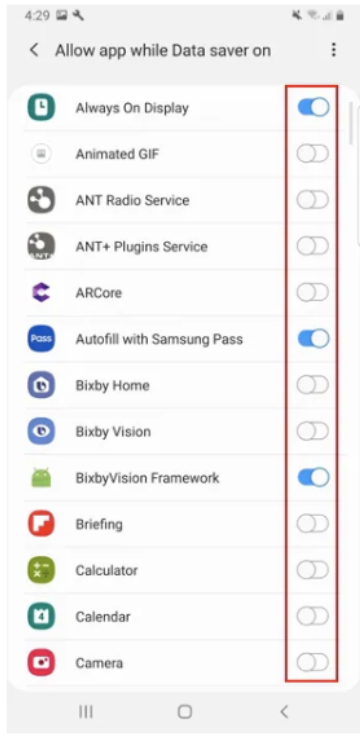
Claim	Public Documentation
	<div><div>Structure</div><div><h1>UIBackgroundTaskIdentifier</h1><p>A unique token that identifies a request to run in the background.</p><div><div>iOS 4.0+</div><div>iPadOS 4.0+</div><div>Mac Catalyst 13.0+</div><div>tvOS 9.0+</div><div>visionOS 1.0+ Beta</div></div><div><div>struct</div> UIBackgroundTaskIdentifier</div></div></div> <div><div>Topics</div><div><div>Identifier</div><div><pre>static let invalid: UIBackgroundTaskIdentifier</pre><p>A token that indicates an invalid task request.</p></div></div><div><div>Initializers</div><div><pre>init(rawValue: Int)</pre><p>Creates a new instance with the specified raw value.</p></div></div><div><p>https://developer.apple.com/documentation/uikit/app_and_environment/scenes:</p></div></div>

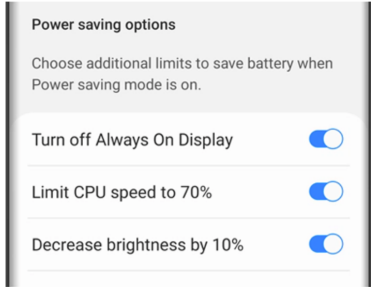
Claim	Public Documentation
	 <p>API Collection</p> <h2>Scenes</h2> <p>Manage multiple instances of your app's UI simultaneously, and direct resources to the appropriate instance of your UI.</p> <h3>Overview</h3> <p>UIKit manages each instance of your app's UI using a <code>UIWindowScene</code> object. A scene contains the windows and view controllers for presenting one instance of your UI. Each scene also has a corresponding <code>UIWindowSceneDelegate</code> object, which you use to coordinate interactions between UIKit and your app. Scenes run concurrently with each other, sharing the same memory and app process space. As a result, a single app may have multiple scenes and scene delegate objects active at the same time.</p> <p>; https://developer.apple.com/documentation/bundleresources/information_property_list/bgtaskschedulerpermittedidentifiers.</p>
<p>9[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and at least one other software component, application, process, function, activity, or service, and wherein identify a service usage activity of the wireless end-user device comprises:</p>	<p>The Accused Instrumentalities comprise the “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and at least one other software component, application, process, function, activity, or service.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8.</p> <p>As a further example, the Accused Instrumentalities comprise multiple software components, applications, processes, functions, activities, or services that result in service usage activities, such as the Settings App co-operating with Data Saver, Power Saver, Doze Mode, App Standby, Adaptive Battery, or JobScheduler and/or one or more applications on a device resulting in service usage activities. <i>See, e.g.</i>, https://www.att.com/device-support/article/wireless/KM1476382/Samsung/SamsungSMS908U:</p>


Claim	Public Documentation
	<div><h3>View data usage by app</h3></div> <div><p>From the Mobile data usage screen, scroll to view data usage broken down by application.</p></div> <div><p><i>Note: To restrict apps from using data while running in the background, swipe down from the Notification bar, then select the Settings icon > Connections > Data usage > Data saver > Data saver switch. Your myAT&T account is also another way to manage your wireless usage.</i></p></div> <div></div> <div><p>; https://www.samsung.com/us/support/answer/ANS00079018/:</p></div>

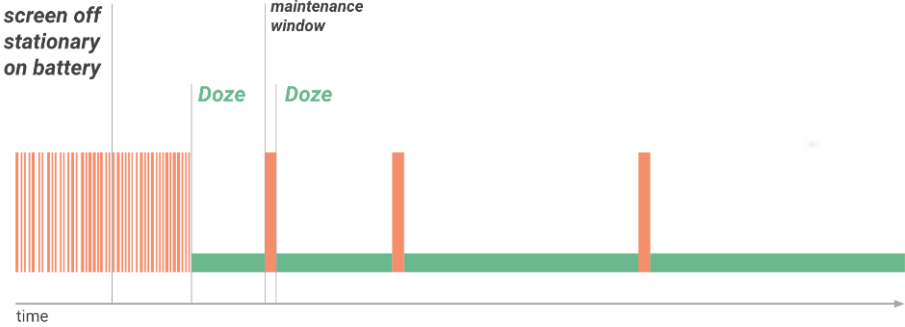
Claim	Public Documentation
	<div><p>Turn Data saver on or off ✓</p><p>Data saver prevents some apps from sending or receiving data in the background. So rest assured, you're not wasting any precious data.</p><ol style="list-style-type: none">1. Navigate to and open Settings, and then tap Connections.2. Tap Data usage, tap Data saver, and then tap the switch next to Turn on now.3. If there are still some apps you'd like to run in the background, you can set them as exceptions. Tap Allowed to use data while Data saver is on at the bottom of the screen.4. Tap More options (the three vertical dots) and choose Show system apps or Show allowed apps first to narrow down the list.5. Finally, tap the switch(es) next to your desired app(s).</div> <p>; https://www.samsung.com/ae/support/mobile-devices/android-pie-what-is-the-data-saver-feature/;</p>

Claim	Public Documentation
	

Claim	Public Documentation
	<p>6 Toggle the switches on next to the apps that you need to receive notifications from all the time. Email, Messages, Messenger, Instagram and Facebook are all popular options to allow unrestricted data access..</p>  <p>; https://www.samsung.com/us/support/answer/ANS00078987/:</p>

Claim	Public Documentation
	<div> <h3>Power saving mode ✓</h3> <p>Note: Using Power saving mode can affect app and device performance. Some tasks and features may take longer to complete or update. Additionally, apps running in the background may not receive updates or send you notifications when Power saving mode is enabled.</p> <p>Before you turn in for the night, change your phone's power mode. This will decrease your phone's performance and save battery life.</p> <ol style="list-style-type: none"> 1. Navigate to and open Settings, and then tap Battery and device care. 2. Tap Battery, and then tap Power saving. 3. Tap the switches next to your desired settings or customizations. 4. Finally, tap the switch at the top of the screen to activate Power saving mode. <p>You will not be able to adjust the settings once the mode is enabled. If you want to change any of the settings, you'll need to temporarily disable Power saving mode.</p>  <p>The screenshot shows a 'Power saving options' menu with the instruction 'Choose additional limits to save battery when Power saving mode is on.' Below this are three toggle switches, all of which are turned on: 'Turn off Always On Display', 'Limit CPU speed to 70%', and 'Decrease brightness by 10%'.</p> </div> <p>; https://developer.android.com/training/basics/network-ops/data-saver:</p> <div> <h3>Optimize network data usage 🔖</h3> <p>Over the life of a smartphone, the cost of a cellular data plan can easily exceed the cost of the device itself. On Android 7.0 (API level 24) and higher, users can enable Data Saver on a device-wide basis in order to optimize their device's data usage, and use less data. This ability is especially useful when roaming, near the end of the billing cycle, or for a small prepaid data pack.</p> <p>When a user enables Data Saver in Settings and the device is on a metered network, the system blocks background data usage and signals apps to use less data in the foreground wherever possible. Users can allow specific apps to use background metered data usage even when Data Saver is turned on.</p> <p>Android 7.0 (API level 24) extends the <code>ConnectivityManager</code> API to provide apps with a way to retrieve the user's Data Saver preferences and monitor preference changes. It is considered good practice for apps to check whether the user has enabled Data Saver and make an effort to limit foreground and background data usage.</p> </div>

Claim	Public Documentation
	<div><h3>Check data saver preferences</h3><p>On Android 7.0 (API level 24) and higher, apps can use the <code>ConnectivityManager</code> API to determine what data usage restrictions are being applied. The <code>getRestrictBackgroundStatus()</code> method returns one of the following values:</p><div><code>RESTRICT_BACKGROUND_STATUS_DISABLED</code></div><p>Data Saver is disabled.</p><div><code>RESTRICT_BACKGROUND_STATUS_ENABLED</code></div><p>The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.</p><div><code>RESTRICT_BACKGROUND_STATUS_WHITELISTED</code></div><p>The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.</p><p>Limit data usage whenever the device is connected to a metered network, even if Data Saver is disabled or the app is allowed to bypass it. The following sample code uses <code>ConnectivityManager.isActiveNetworkMetered()</code> and <code>ConnectivityManager.getRestrictBackgroundStatus()</code> to determine how much data the app should use:</p></div> <p>; https://developer.android.com/training/monitoring-device-state/doze-standby;</p> <div><h2>Optimize for Doze and App Standby </h2><p>Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. <i>Doze</i> reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. <i>App Standby</i> defers background network activity for apps with which the user has not recently interacted.</p><p>While the device is in Doze, apps' access to certain battery-intensive resources is deferred until maintenance windows. The specific restrictions are listed in Power Management Restrictions.</p><p>Doze and App Standby manage the behavior of all apps running on Android 6.0 or higher, regardless whether they are specifically targeting API level 23. To ensure the best experience for users, test your app in Doze and App Standby modes and make any necessary adjustments to your code. The sections below provide details.</p></div>

Claim	Public Documentation
	<div> <h3>Understanding Doze</h3> <p>If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.</p> <p>Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this <i>maintenance window</i>, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.</p>  <p>Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.</p> </div> <div> <p>At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.</p> <p>As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.</p> </div> <div> <p>The Doze restriction on network access is also likely to affect your app, especially if the app relies on real-time messages such as tickles or notifications. If your app requires a persistent connection to the network to receive messages, you should use Firebase Cloud Messaging (FCM) if possible.</p> </div> <p>; https://developer.android.com/topic/performance/appstandby:</p>

App Standby Buckets

Android 9 (API level 28) and higher support **App Standby Buckets**. App Standby Buckets help the system prioritize apps' requests for resources based on how recently and how frequently the apps are used. Based on app usage patterns, each app is placed in one of five priority **buckets**. The system limits the device resources available to each app based on which bucket the app is in.

Priority buckets

The system dynamically assigns each app to a priority bucket, reassigning the apps as needed. The system may rely on a preloaded app that uses machine learning to determine how likely each app is to be used, and assigns apps to the appropriate buckets. If the system app is not present on a device, the system defaults to sorting apps based on how recently they were used. More active apps are assigned to buckets that give the apps higher priority, making more system resources available to the app. In particular, the bucket determines how frequently the app's jobs run, and how often the app can trigger alarms. These restrictions apply only while the device is on battery power; the system does not impose these restrictions on apps while the device is charging.

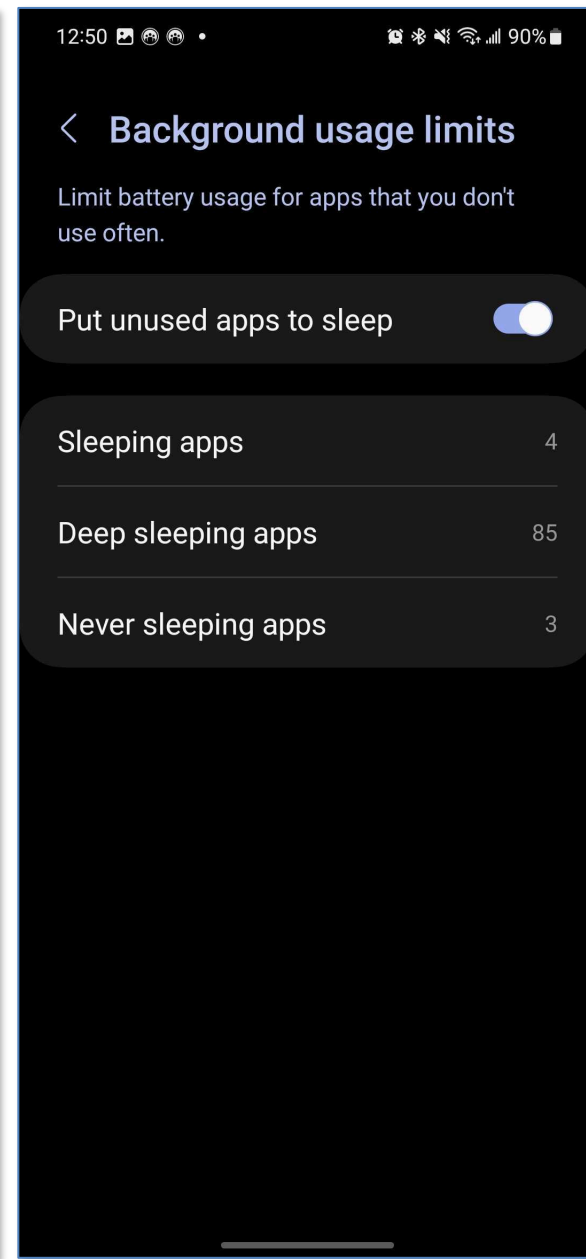
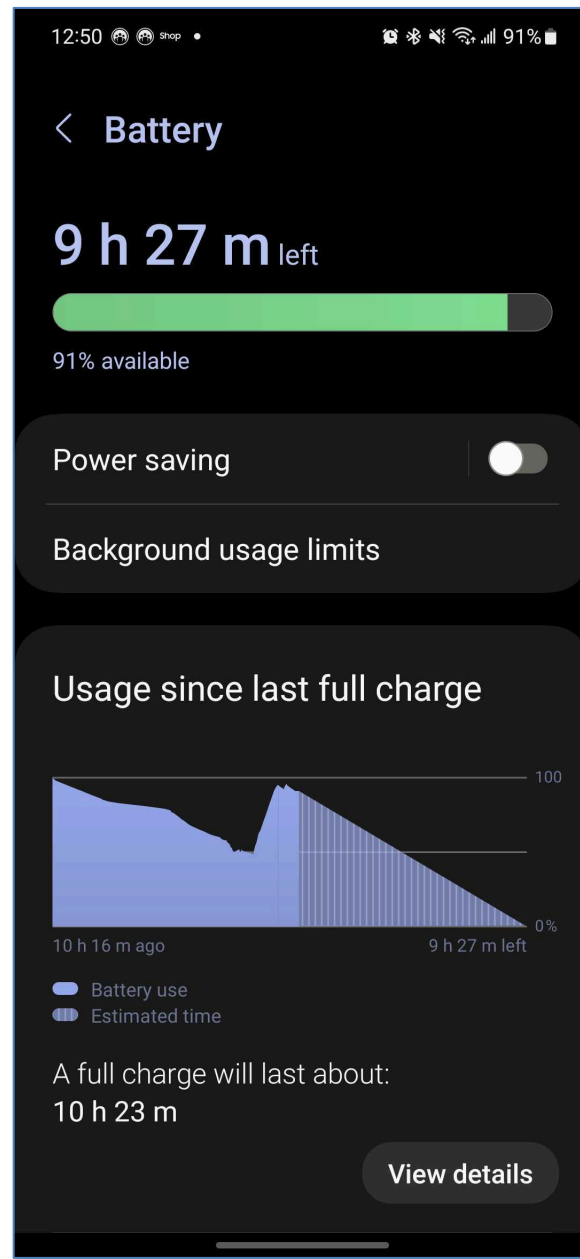
★ **Note:** Every manufacturer can set their own criteria for how non-active apps are assigned to buckets. You should not try to influence which bucket your app is assigned to. Instead, focus on making sure your app behaves well in whatever bucket it might be in. Your app can find out what bucket it's currently in by calling [UsageStatsManager.getAppStandbyBucket\(\)](#).

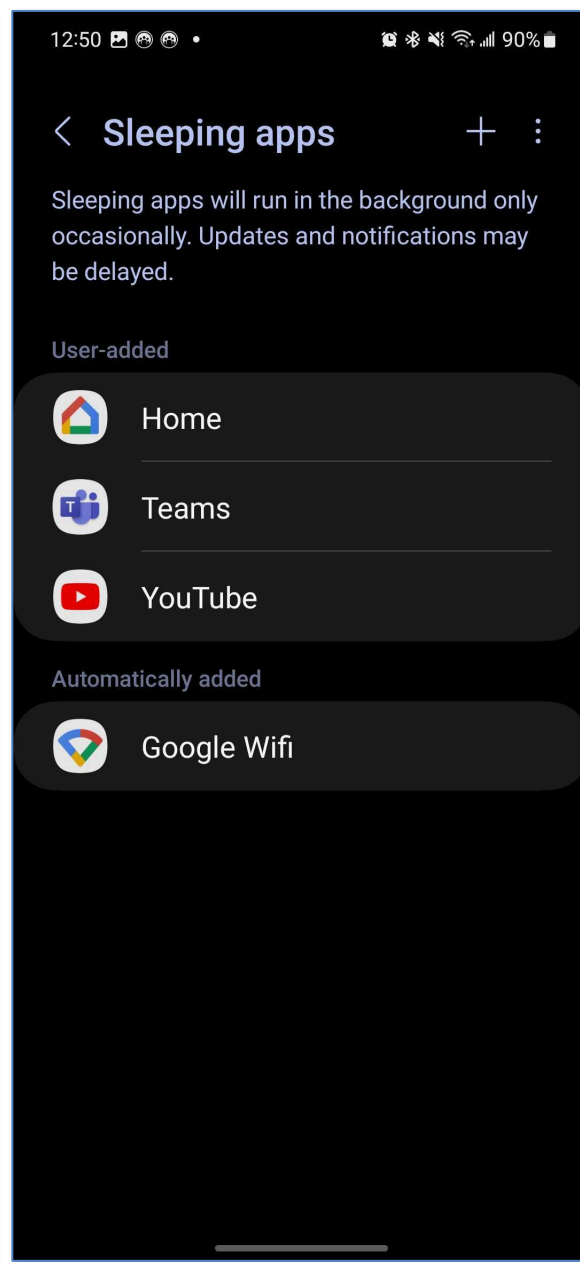
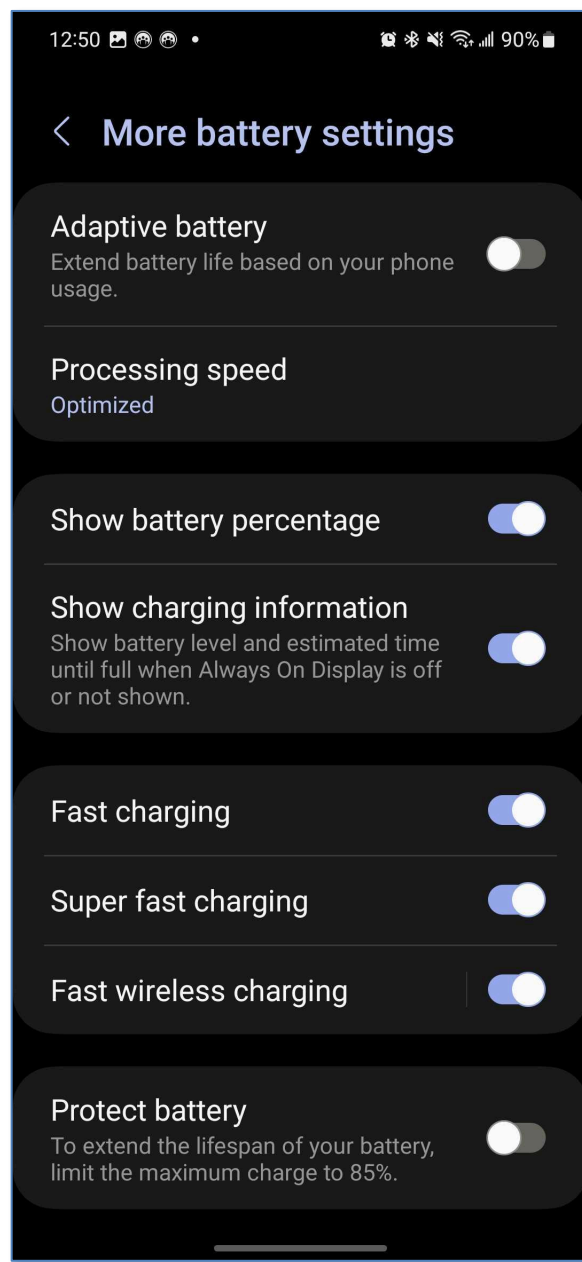
The buckets are:

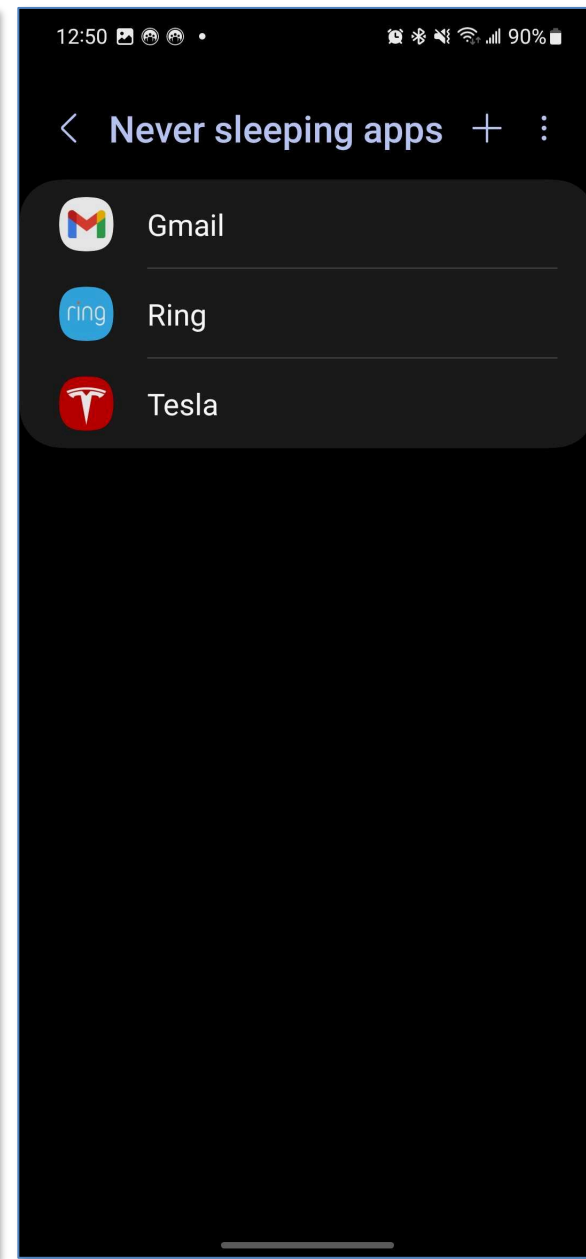
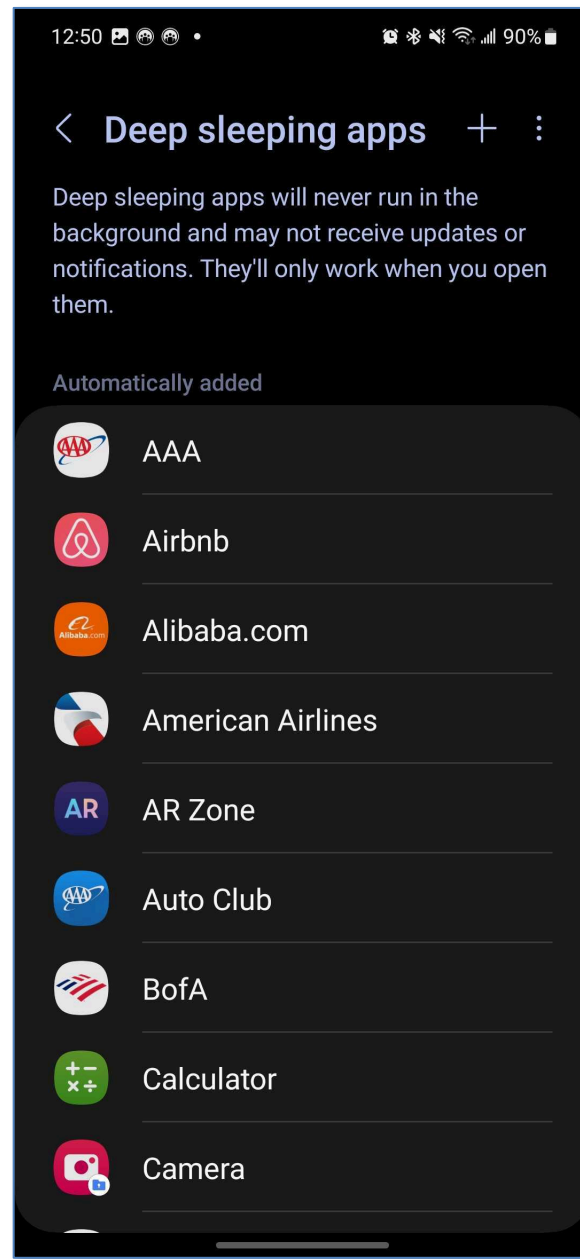
1. **Active:** App is currently being used or was very recently used.
2. **Working set:** App is in regular use.
3. **Frequent:** App is often used, but not every day.
4. **Rare:** App is not frequently used.
5. **Restricted:** App consumes a great deal of system resources, or may exhibit undesirable behavior.

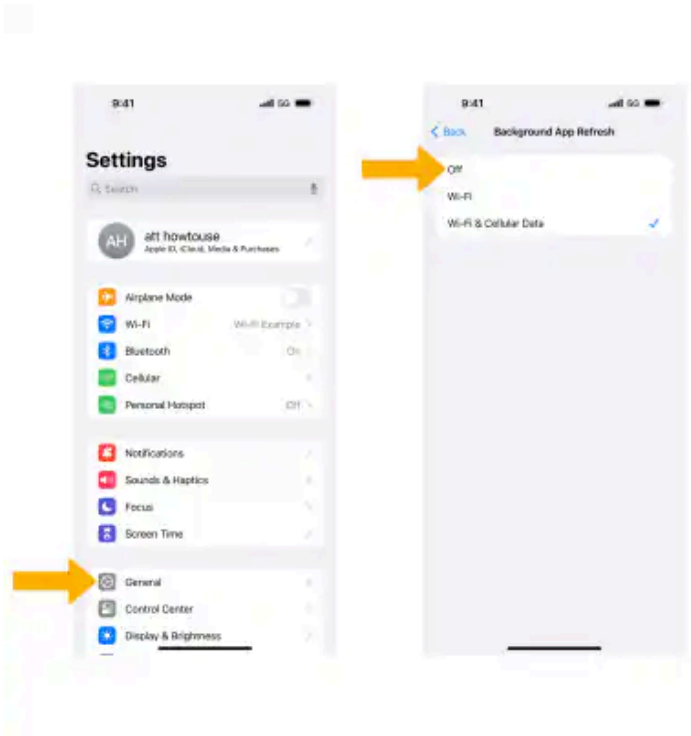
In addition, there's a special **never** bucket for apps that have been installed but have never been run. The system imposes severe restrictions on these apps.



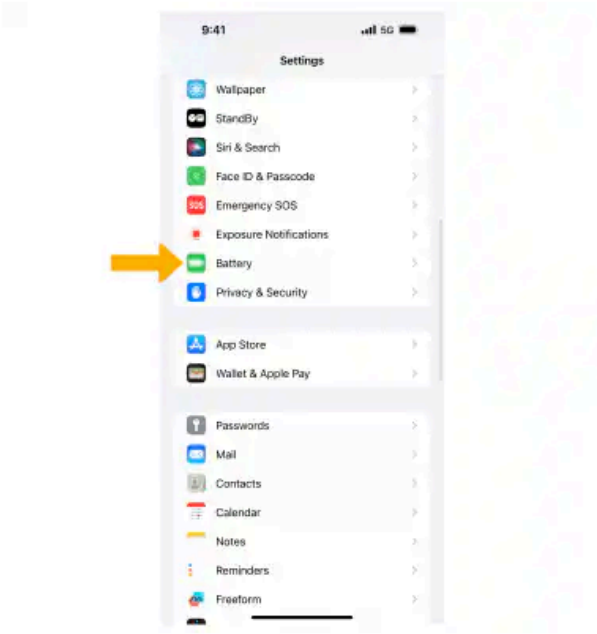
Claim	Public Documentation
	; https://developer.android.com/topic/performance/background-optimization ; https://developer.android.com/reference/android/app/job/JobScheduler ; https://developer.android.com/guide/background/persistent ; https://developer.android.com/guide/components/services ; <i>see also</i> the exemplary screenshots below:

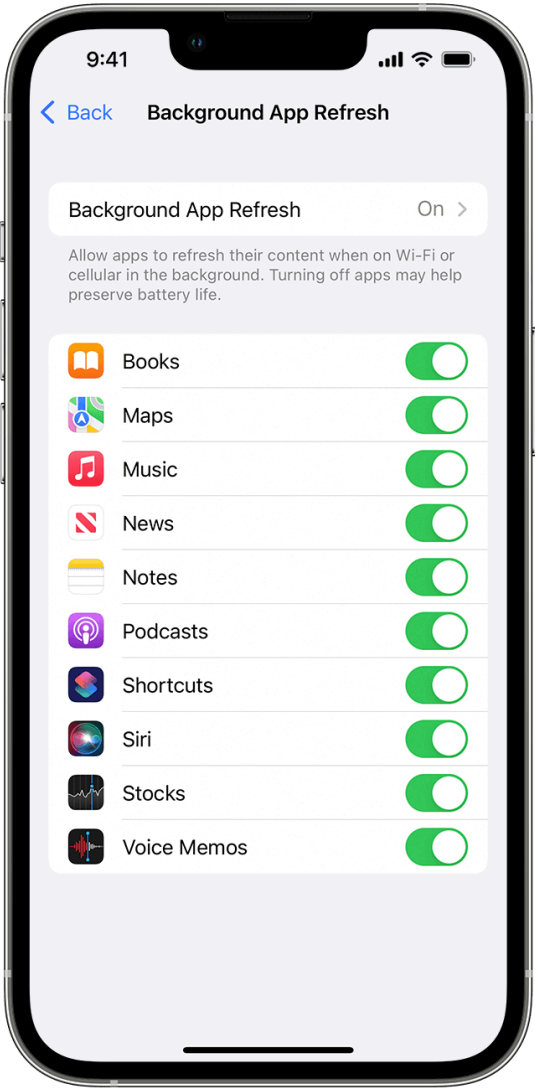






Claim	Public Documentation
	<p>As a further example, the Accused Instrumentalities comprise multiple software components, applications, processes, functions, activities, or services that result in service usage activities, such as the Settings App co-operating with Background App Refresh or Low Power Mode and/or one or more applications on a device resulting in service usage activities. <i>See, e.g.,</i> https://www.att.com/device-support/article/wireless/000097086/Apple/iPhone15Pro/:</p> <p>TURN OFF BACKGROUND APP REFRESH: From the Settings screen, select General > Background App Refresh > Off.</p> 

Claim	Public Documentation
	<p>Enable Low Power Mode</p> <p>1. From the home screen, select the  Settings app.</p> <p><i>Note: iPhone automatically prompts you to turn on Low Power mode when you have 20% battery life remaining.</i></p> <p>2. Scroll to and select Battery. Select the  Low Power Mode switch to place it in the On position.</p> <p><i>Note: When Low Power mode is on, the Battery icon turns yellow and the battery percentage is displayed in the status bar. Fetch, background app refresh, automatic downloads, and some visual effects are reduced or turned off. You can view your app usage for the Last 24 Hours or the Last 5 Days. Select the desired option to view.</i></p> <div>A screenshot of an iPhone's Settings app. The 'Settings' title is at the top. A list of settings options is shown, including 'Wallpaper', 'StandBy', 'Siri & Search', 'Face ID & Passcode', 'Emergency SOS', 'Exposure Notifications', 'Battery', 'Privacy & Security', 'App Store', 'Wallet & Apple Pay', 'Passwords', 'Mail', 'Contacts', 'Calendar', 'Notes', 'Reminders', and 'Freeform'. A yellow arrow points to the 'Battery' option in the list. The status bar at the top shows the time '9:41' and '5G' signal.</div> <p>;https://support.apple.com/en-us/HT202070:</p>

Claim	Public Documentation
	<div><h2>Use Background App Refresh</h2></div> <div><p>After you switch to a different app, some apps run for a short period of time before they're set to a suspended state. Apps that are in a suspended state aren't actively in use, open, or taking up system resources. With Background App Refresh, suspended apps can check for updates and new content.</p></div> <div><p>If you want suspended apps to check for new content, go to Settings > General > Background App Refresh and turn on Background App Refresh. If you quit an app from the app switcher, it might not be able to run or check for new content before you open it again.</p></div> <div><p>; https://support.apple.com/en-us/HT205234:</p></div> <div></div>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

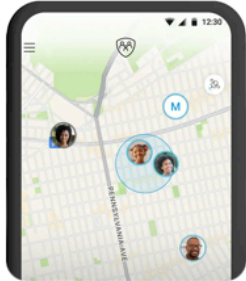
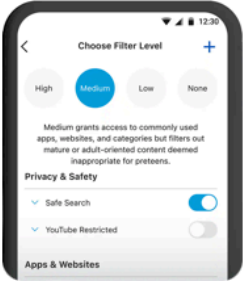
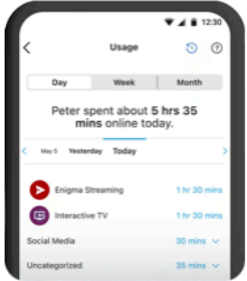
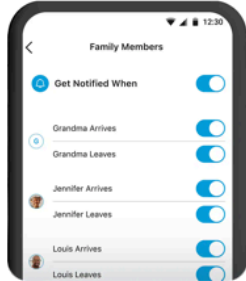
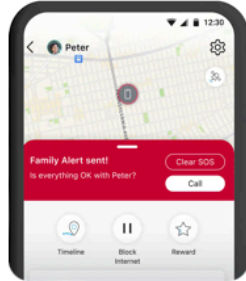
- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.



1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>; https://www.att.com/security/secure-family-app/:</p> <div> <h2 style="text-align: center;">Top safety features</h2> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div>  <p>Location tracking</p> <p>Track family member's devices in real-time on an interactive map, or track their location history on a breadcrumb trail map.</p> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  <p>Control what they access</p> <p>Filter or block apps and online content based on age-appropriate settings and set time limits for internet access and app usage.</p> </div> <div>  <p>Double check their online activities</p> <p>View your child's internet and app usage for the last 30 days, and temporarily halt their internet access when it's time for homework, bed, or dinner.</p> </div> <div>  <p>Set location alerts</p> <p>Get alerts when your child enters or leaves a saved area, or schedule alerts for additional peace of mind.</p> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  <p>SOS alerts</p> <p>One press of a button sends an SOS alert to the whole family.</p> </div> </div> </div> <p>; https://www.att.com/features/myatt-app/.</p>
<p>9[b] identify a data flow to or from the at least one other software component, application, process, function, activity, or service; and</p>	<p>The Accused Instrumentalities further “identify a data flow to or from the at least one other software component, application, process, function, activity, or service.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8, and 9[a].</p>
<p>9[c] associate the data flow with the first software component.</p>	<p>The Accused Instrumentalities further “associate the data flow with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8, and 9[a]-[b].</p>

Claim	Public Documentation
<p>10. The non-transitory computer-readable storage medium recited in claim 9, wherein the first software component comprises at least a portion of an application, and wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 9, wherein the first software component comprises at least a portion of an application, and wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, and 8-9.</i></p>
<p>11. The non-transitory computer-readable storage medium recited in claim 9, wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 9, wherein the at least one other software component, application, process, function, activity, or service performs a proxy function.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, and 8-9.</i></p>
<p>12. The non-transitory computer-readable storage medium recited in claim 9, wherein the at least one other software component, application, process, function, activity, or service comprises a media service manager, an e-mail service manager, a domain name service (DNS) function, a software download service manager, a media download manager, a data download service manager, a media library function, a simple mail transfer protocol (SMTP) proxy,</p>	<p>The Accused Instrumentalities comprise “nonnon-transitory computer-readable storage medium recited in claim 9, wherein the at least one other software component, application, process, function, activity, or service comprises a media service manager, an e-mail service manager, a domain name service (DNS) function, a software download service manager, a media download manager, a data download service manager, a media library function, a simple mail transfer protocol (SMTP) proxy, an Internet message access protocol (IMAP) proxy, a post office protocol (POP) proxy, a hypertext transfer protocol (HTTP) proxy, an instant messaging (IM) proxy, a virtual private network (VPN) service manager, or a secure socket layer (SSL) proxy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6 and 8-9, as well as the following exemplary citations:</i> https://developer.android.com/reference/java/net/URLConnection; https://developer.android.com/training/articles/security-ssl; https://developer.android.com/reference/android/net/DnsResolver; https://developer.android.com/guide/topics/media; https://developer.android.com/media; https://developer.android.com/guide/topics/media/platform/mediaplayer; https://developer.apple.com/documentation/networkextension/dns_settings; https://developer.apple.com/documentation/avfoundation/avplayer;</p>

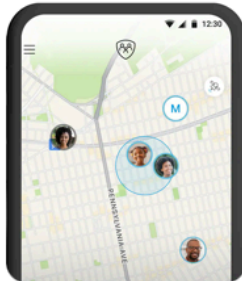
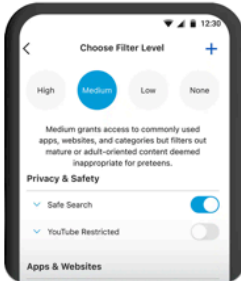
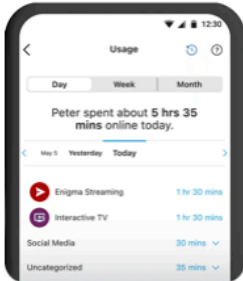
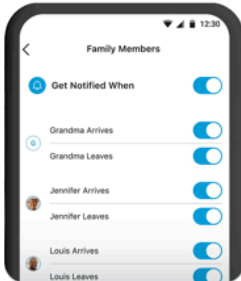
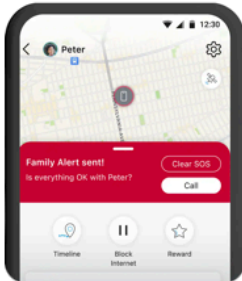
Claim	Public Documentation
an Internet message access protocol (IMAP) proxy, a post office protocol (POP) proxy, a hypertext transfer protocol (HTTP) proxy, an instant messaging (IM) proxy, a virtual private network (VPN) service manager, or a secure socket layer (SSL) proxy.	https://developer.apple.com/documentation/avfoundation/media_playback/configuring_your_app_for_media_playback ; https://developer.apple.com/documentation/devicemanagement/mail ; https://developer.apple.com/documentation/security/secure_transport/using_the_secure_socket_layer_for_network_communication ; https://developer.apple.com/documentation/networkextension/personal_vpn ; https://developer.apple.com/documentation/foundation/nsproxy ; https://developer.apple.com/documentation/messages .
13[a]. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises:	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises.” <i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
13[b] monitor an application proxy service flow; and	The Accused Instrumentalities further “monitor an application proxy service flow.” <i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
13[c] classify the application proxy service flow as being initiated by or belonging to the first software component.	The Accused Instrumentalities further “classify the application proxy service flow as being initiated by or belonging to the first software component.” <i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
14[a]. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises:	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises.” <i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
14[b] associate an identifier identifying the first software component with a request to a proxy service;	The Accused Instrumentalities further “associate an identifier identifying the first software component with a request to a proxy service.”

Claim	Public Documentation
	<i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
14[c] associate the request to the proxy service with a traffic flow, the traffic flow comprising the service usage activity; and	The Accused Instrumentalities further “associate the request to the proxy service with a traffic flow, the traffic flow comprising the service usage activity.” <i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
14[d] associate the traffic flow with the identifier.	The Accused Instrumentalities further “associate the traffic flow with the identifier.” <i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
15. The non-transitory computer-readable storage medium recited in claim 14, wherein the identifier comprises a name, a fingerprint, an identification tag, a process number, or a credential.	The Accused Instrumentalities further “non-transitory computer-readable storage medium recited in claim 14, wherein the identifier comprises a name, a fingerprint, an identification tag, a process number, or a credential.” <i>See</i> , for example, the disclosures identified for claims 1-6 and 8-9.
16[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and a proxy function, and wherein identify a service usage activity of the wireless end-user device comprises:	The Accused Instrumentalities comprises “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity results from cooperation between the first software component and a proxy function, and wherein identify a service usage activity of the wireless end-user device comprises.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, and 14.
16[b] identify a data flow to or from the proxy function; and	The Accused Instrumentalities further “identify a data flow to or from the proxy function.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, and 14.

Claim	Public Documentation
16[c] associate the data flow with the first software component.	<p>The Accused Instrumentalities further “associate the data flow with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
17. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify the service usage activity based on a stream, a flow, a destination, a port, a packet inspection, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises identify the service usage activity based on a stream, a flow, a destination, a port, a packet inspection, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
18. The non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises determine an identifier associated with the first software component, a number associated with the first software component, a name associated with the first software component, or a signature associated with the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein identify a service usage activity of the wireless end-user device comprises determine an identifier associated with the first software component, a number associated with the first software component, a name associated with the first software component, or a signature associated with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
19. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application on the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises at least a portion of an application on the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>

Claim	Public Documentation
<p>20. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises an operating system component, function, or service.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises an operating system component, function, or service.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
<p>21. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a software function, utility, process, or tool.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a software function, utility, process, or tool.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
<p>22. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a plurality of applications, processes, functions, activities, or services.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a plurality of applications, processes, functions, activities, or services.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>
<p>23. The non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a Java archive (JAR) file, an application that uses an operating system (OS) function, an application that uses a proxy service function, or an OS process function that supports an application or OS function.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the first software component comprises a Java archive (JAR) file, an application that uses an operating system (OS) function, an application that uses a proxy service function, or an OS process function that supports an application or OS function.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p>

Claim	Public Documentation
<p>24. The non-transitory computer-readable storage medium recited in claim 1, wherein the network element is communicatively coupled to the wireless end-user device over the wireless network.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the network element is communicatively coupled to the wireless end-user device over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, and 14.</p> <p>As a further example, the Accused Instrumentalities communicate with network elements. <i>See, e.g.</i>, https://www.att.com/plans/wireless/; https://www.att.com/wireless/; https://www.business.att.com/?bref=IBBz250012babsbzL; https://www.att.com/prepaid/; https://www.att.com/device-support/article/wireless/KM1124573/Apple/iPhone12Pro:</p> <p>Verify software update & update Carrier version</p> <ol style="list-style-type: none"> 1. Tap Settings, then General. 2. Tap About. 3. If a Carrier update is available, you'll be prompted to install it. 4. If the iOS version and the current software update details match, the device has the latest software. 5. For additional help, visit Apple Support: Find the software version on your iPhone, iPad, or iPod.
<p>25. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on an amount of time, a time of day, a day of a week, a schedule, a network busy state, a network performance state, a network quality-of-service state, a priority of the service usage activity, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on an amount of time, a time of day, a day of a week, a schedule, a network busy state, a network performance state, a network quality-of-service state, a priority of the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, and 24.</p> <p>As a further example, the Accused Instrumentalities comprise policies based on network states. <i>See, e.g.</i>,</p>

Claim	Public Documentation
	<p> https://developer.android.com/training/basics/network-ops/reading-network-state; https://developer.android.com/reference/android/net/NetworkCapabilities; https://developer.android.com/about/versions/pie/android-9.0. </p> <p>As a further example, the Accused Instrumentalities comprise policies based on based on an amount of time, a time of day, a day of a week, a schedule, or a combination of one of these or other policies comprised in the exemplary citations found in claims 1-6, 8-9, 14, and 24. <i>See, e.g.</i>, https://www.att.com/security/secure-family-app/:</p> <div> <h2 style="text-align: center;">Top safety features</h2> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div>  <p>Location tracking</p> <p>Track family member's devices in real-time on an interactive map, or track their location history on a breadcrumb trail map.</p> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  <p>Control what they access</p> <p>Filter or block apps and online content based on age-appropriate settings and set time limits for internet access and app usage.</p> </div> <div>  <p>Double check their online activities</p> <p>View your child's internet and app usage for the last 30 days, and temporarily halt their internet access when it's time for homework, bed, or dinner.</p> </div> <div>  <p>Set location alerts</p> <p>Get alerts when your child enters or leaves a saved area, or schedule alerts for additional peace of mind.</p> <p>Availability, timeliness, or accuracy of device location not guaranteed. Coverage not avail. everywhere.</p> </div> <div>  <p>SOS alerts</p> <p>One press of a button sends an SOS alert to the whole family.</p> </div> </div> <p>https://www.att.com/features/myatt-app/.</p> </div>

Claim	Public Documentation
<p>26. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a background service class, a background service state, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a background service class, a background service state, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>27. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on at least an aspect of a service plan.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on at least an aspect of a service plan.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>28. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a behavior of the first software component, a behavior of the service usage activity, a messaging layer behavior, a random back-off, a power state of the wireless end-user device, a usage state of the wireless end-user device, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a behavior of the first software component, a behavior of the service usage activity, a messaging layer behavior, a random back-off, a power state of the wireless end-user device, a usage state of the wireless end-user device, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>29. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a user interaction with the first software component, a user interaction with the service usage activity, a user interaction with the wireless end-user device,</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a user interaction with the first software component, a user interaction with the service usage activity, a user interaction with the wireless end-user device, a user interface priority of the service usage activity, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
a user interface priority of the service usage activity, or a combination of these.	
30. The non-transitory computer-readable storage medium recited in claim 1, wherein the wireless end-user device is part of a device group, and wherein the policy is associated with the device group.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the wireless end-user device is part of a device group, and wherein the policy is associated with the device group.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
31. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
32. The non-transitory computer-readable storage medium recited in claim 31, wherein the type of the wireless network is cellular, 2G, 3G, 4G, home, roaming, wireless fidelity (WiFi), or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 31, wherein the type of the wireless network is cellular, 2G, 3G, 4G, home, roaming, wireless fidelity (WiFi), or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
33. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a roaming condition of the wireless end-user device, a cost associated with communicating over the wireless network, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a roaming condition of the wireless end-user device, a cost associated with communicating over the wireless network, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

Claim	Public Documentation
	For further example, the policy can be based on a roaming condition of the wireless end-user device, or a combination of a roaming condition and a cost associated with the plan used to communicate over the wireless network. <i>See, e.g.</i> , https://www.att.com/international/canada-roaming/ ; https://www.att.com/international/
34. The non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises preventing the first software component from launching, executing, or running.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises preventing the first software component from launching, executing, or running.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.
35. The non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies the first software component or the service usage activity.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies the first software component or the service usage activity.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.
36. The non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies a network parameter or a network type.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of the policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input identifies a network parameter or a network type.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.

Claim	Public Documentation
<p>37. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a usage limit or a threshold.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a usage limit or a threshold.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p> <p>As a further example, the policy may be based on a usage limit or a threshold such as a limit of the amount of data available for a given plan. <i>See, e.g.</i>, claims 1-6, 8-9, 14, 24 and 25;</p>
<p>38. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a limit, wherein the limit is based on the user input obtained through the user interface of the wireless end-user device, a user preference, an indication of a threshold, a total traffic, a type of traffic, a destination, a port, a frequency of access, an access behavior, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a limit, wherein the limit is based on the user input obtained through the user interface of the wireless end-user device, a user preference, an indication of a threshold, a total traffic, a type of traffic, a destination, a port, a frequency of access, an access behavior, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.</p>
<p>39. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the service usage activity, a priority of the service usage activity, a duration of the service usage activity, a characteristic of the wireless network, a quality-of-service (QoS) rule associated with the service usage activity, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is based on a type of the service usage activity, a priority of the service usage activity, a duration of the service usage activity, a characteristic of the wireless network, a quality-of-service (QoS) rule associated with the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.</p>

Claim	Public Documentation
<p>40. The non-transitory computer-readable storage medium recited in claim 1, wherein the policy comprises one or more filters, wherein the one or more filters provide filtering based on: a characteristic of the wireless network, a service plan applicable to the wireless end-user device, a characteristic of the first software component, a time of day, a network busy state, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy comprises one or more filters, wherein the one or more filters provide filtering based on: a characteristic of the wireless network, a service plan applicable to the wireless end-user device, a characteristic of the first software component, a time of day, a network busy state, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.</i></p>
<p>41. The non-transitory computer-readable storage medium recited in claim 1, wherein the wireless network is a first wireless network, and wherein the service usage activity is a first service usage activity, and wherein the policy assists the one or more processors to control the first service usage activity when the wireless end-user device is connected to the first wireless network and refrain from controlling a second service usage activity when the wireless end-user device is connected to a second wireless network, the second service usage activity being associated with the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the wireless network is a first wireless network, and wherein the service usage activity is a first service usage activity, and wherein the policy assists the one or more processors to control the first service usage activity when the wireless end-user device is connected to the first wireless network and refrain from controlling a second service usage activity when the wireless end-user device is connected to a second wireless network, the second service usage activity being associated with the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 37.</i></p>

Claim	Public Documentation
42. The non-transitory computer-readable storage medium recited in claim 41, wherein control the first service usage activity comprises prevent, restrict, or block the first service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 41, wherein control the first service usage activity comprises prevent, restrict, or block the first service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 37, and 41.</i></p>
43. The non-transitory computer-readable storage medium recited in claim 1, wherein the second wireless network is a wireless fidelity (WiFi) network or a home network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the second wireless network is a wireless fidelity (WiFi) network or a home network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
44. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a user is interacting with or has interacted with the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a user is interacting with or has interacted with the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
45. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a user interface foreground.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a user interface foreground.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
<p>46. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a software update.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a software update.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>47. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is or has been classified as being in a background state or the service usage activity is or has been classified as a background service.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is or has been classified as being in a background state or the service usage activity is or has been classified as a background service.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>48. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is identified by a list specifying one or more background activities.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is identified by a list specifying one or more background activities.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
49. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a foreground activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the service usage activity is a foreground activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
50. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
51[a] The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
51[b] determine a classification of the service usage activity, and	<p>The Accused Instrumentalities further “determine a classification of the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
51[c] based on the classification of the service usage activity, determine whether the service usage	<p>The Accused Instrumentalities “based on the classification of the service usage activity, determine whether the service usage activity comprises the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

Claim	Public Documentation
activity comprises the background activity.	
<p>52. The non-transitory computer-readable storage medium recited in claim 51, wherein the classification of the service usage activity is based on: whether the first software component requires access to the wireless network, whether the one or more prospective or successful communications over the wireless network comprise an update to the first software component, whether the first software component requires information about the wireless network, whether the first software component requires location information, whether the one or more prospective or successful communications over the wireless network comprise an operating system software update, whether the one or more prospective or successful communications over the wireless network comprise a security software update, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with a network-based back-up, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with an e-mail download, whether the one or more prospective or successful communications over the wireless network comprise communications associated with a cloud synchronization service, or a combination of these.”</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 51, wherein the classification of the service usage activity is based on: whether the first software component requires access to the wireless network, whether the one or more prospective or successful communications over the wireless network comprise an update to the first software component, whether the first software component requires information about the wireless network, whether the first software component requires location information, whether the one or more prospective or successful communications over the wireless network comprise an operating system software update, whether the one or more prospective or successful communications over the wireless network comprise a security software update, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with a network-based back-up, whether the one or more prospective or successful communications over the wireless network comprise a communication associated with an e-mail download, whether the one or more prospective or successful communications over the wireless network comprise communications associated with a cloud synchronization service, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 51.</i></p>

Claim	Public Documentation
<p>prospective or successful communications over the wireless network comprise a communication associated with an e-mail download, whether the one or more prospective or successful communications over the wireless network comprise communications associated with a cloud synchronization service, or a combination of these.</p>	
<p>53. The non-transitory computer-readable storage medium recited in claim 51, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 51, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 51.</i></p>
<p>54. The non-transitory computer-readable storage medium recited in claim 1, wherein determine</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 51, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein determine a classification of the service usage activity is based on a characteristic of the</p>

Claim	Public Documentation
<p>whether the service usage activity comprises a background activity is based on a user interaction with the wireless end-user device.</p>	<p>first software component, a content type associated with the service usage activity, a characteristic of the wireless network, a service plan, a user preference, the first user input, a second user input, the information from the network element, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>55. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a value comprising a measure of the service usage activity satisfies a condition relative to a threshold.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether a value comprising a measure of the service usage activity satisfies a condition relative to a threshold.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>56. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component or an unclassified component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is a foreground component or an unclassified component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>57. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is in a foreground of user interaction or determine whether the first software component is in a background of user interaction.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
foreground of user interaction or determine whether the first software component is in a background of user interaction.	
58. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether content associated with the service usage activity is in a foreground of a user interface of the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether content associated with the service usage activity is in a foreground of a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
59. The non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is active.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein determine whether the service usage activity comprises a background activity comprises determine whether the first software component is active.”</p> <p><i>S See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
60. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in allowing, restricting, delaying, throttling, or preventing the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in allowing, restricting, delaying, throttling, or preventing the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>

Claim	Public Documentation
<p>61. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in: blocking access to the wireless network, restricting access to the wireless network, delaying access to the wireless network, or aggregating and holding the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in: blocking access to the wireless network, restricting access to the wireless network, delaying access to the wireless network, or aggregating and holding the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>62. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in queuing, time-windowing, suspending, quarantining, killing, or removing the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in queuing, time-windowing, suspending, quarantining, killing, or removing the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>63. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in preventing an update associated with the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in preventing an update associated with the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>64. The non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the one or more prospective or successful communications over the wireless network comprise one or more Internet protocol (IP) address requests, and wherein apply the policy comprises at least assist in withholding, delaying, time-windowing, reducing in frequency, or aggregating at least a portion of the service usage activity.”</p>

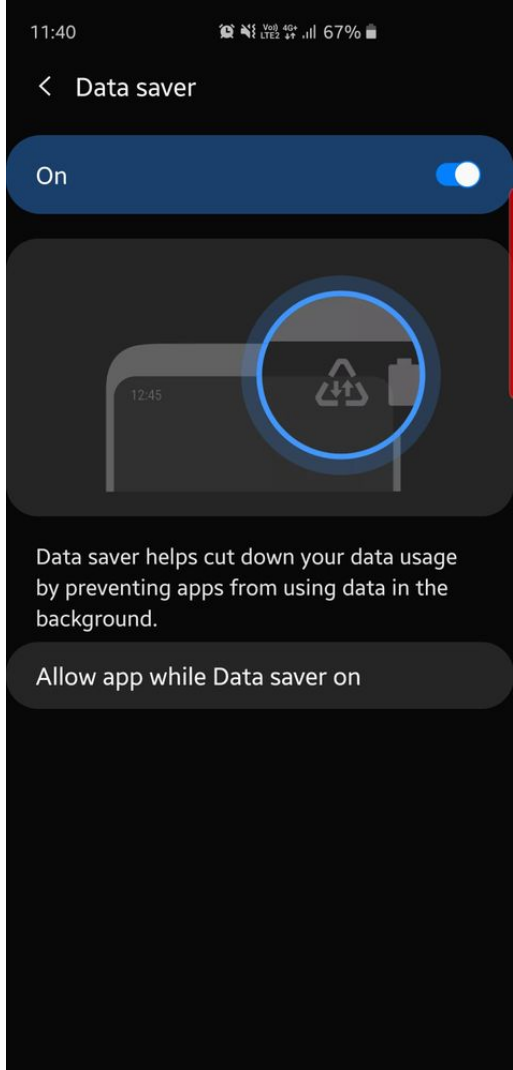
Claim	Public Documentation
network comprise one or more Internet protocol (IP) address requests, and wherein apply the policy comprises at least assist in withholding, delaying, time-windowing, reducing in frequency, or aggregating at least a portion of the service usage activity.	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.
65. The non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises provide second information to the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises provide second information to the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p>
66. The non-transitory computer-readable storage medium recited in claim 65, wherein provide second information to the first software component comprises provide the second information through an application programming interface.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein provide second information to the first software component comprises provide the second information through an application programming interface.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.</p>
67[a] The non-transitory computer-readable storage medium recited in claim 65, wherein, when executed by the one or more processors of the wireless end-user	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.</p>

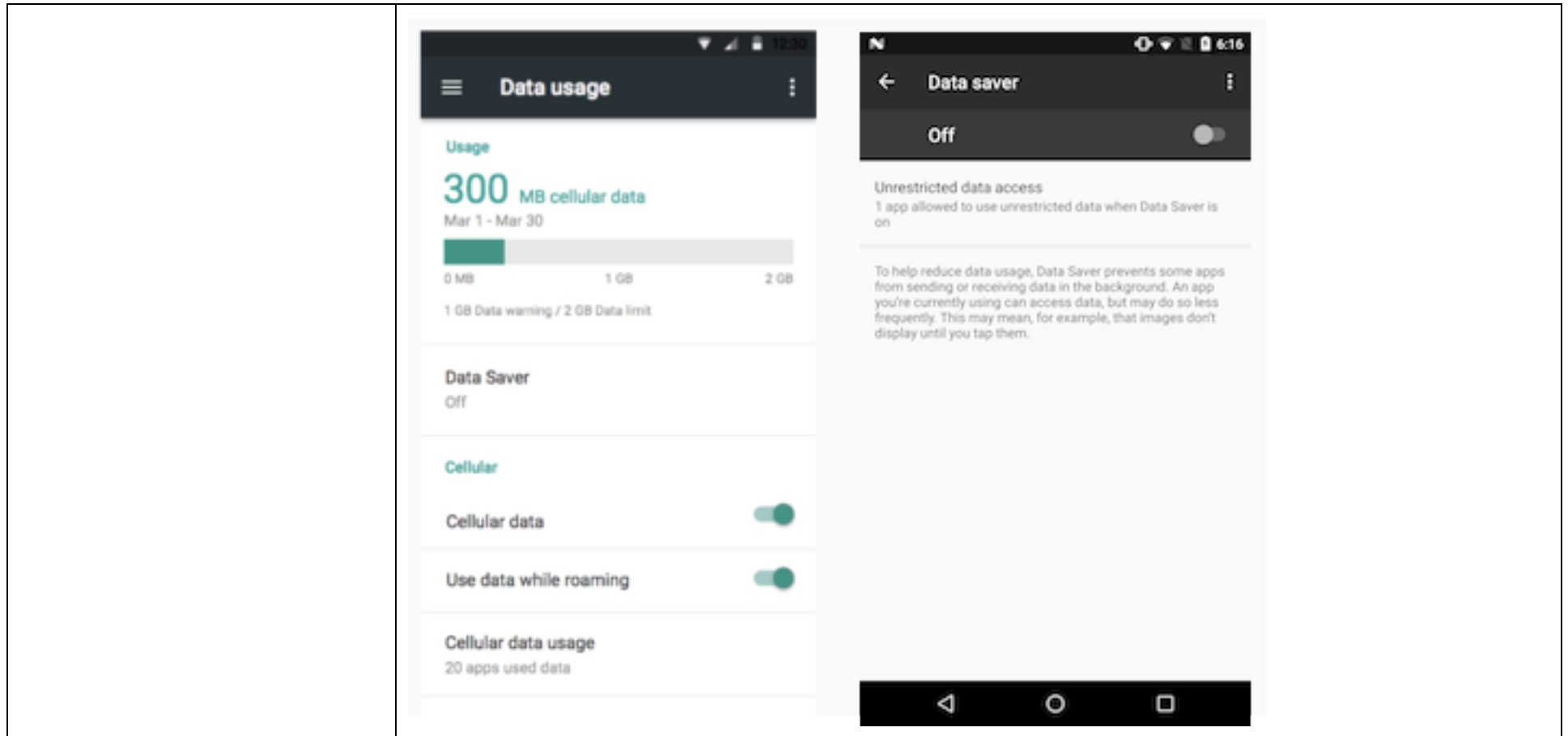
Claim	Public Documentation
device, the machine-executable instructions further cause the one or more processors to:	
67[b] provide third information to a second software component on the wireless end-user device, the third information being different from the second information.	<p>The Accused Instrumentalities further “provide third information to a second software component on the wireless end-user device, the third information being different from the second information.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.</p>
68. The non-transitory computer-readable storage medium recited in claim 67, wherein provide third information to a second software component on the wireless end-user device comprises provide the third information through an application programming interface.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 67, wherein provide third information to a second software component on the wireless end-user device comprises provide the third information through an application programming interface.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 67.</p>
69. The non-transitory computer-readable storage medium recited in claim 67, wherein the third information enables the second software component to communicate over the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 67, wherein the third information enables the second software component to communicate over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 67.</p>
70. The non-transitory computer-readable storage medium recited in claim 65, wherein the wireless network is a first wireless network, and wherein the second information comprises a network	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein the wireless network is a first wireless network, and wherein the second information comprises a network access condition of the first wireless network, a network busy state associated with the first wireless network, a network availability state associated with the first wireless network, a network busy state associated with a second wireless network, a network availability state associated with the second wireless network, or information about the policy.”</p>

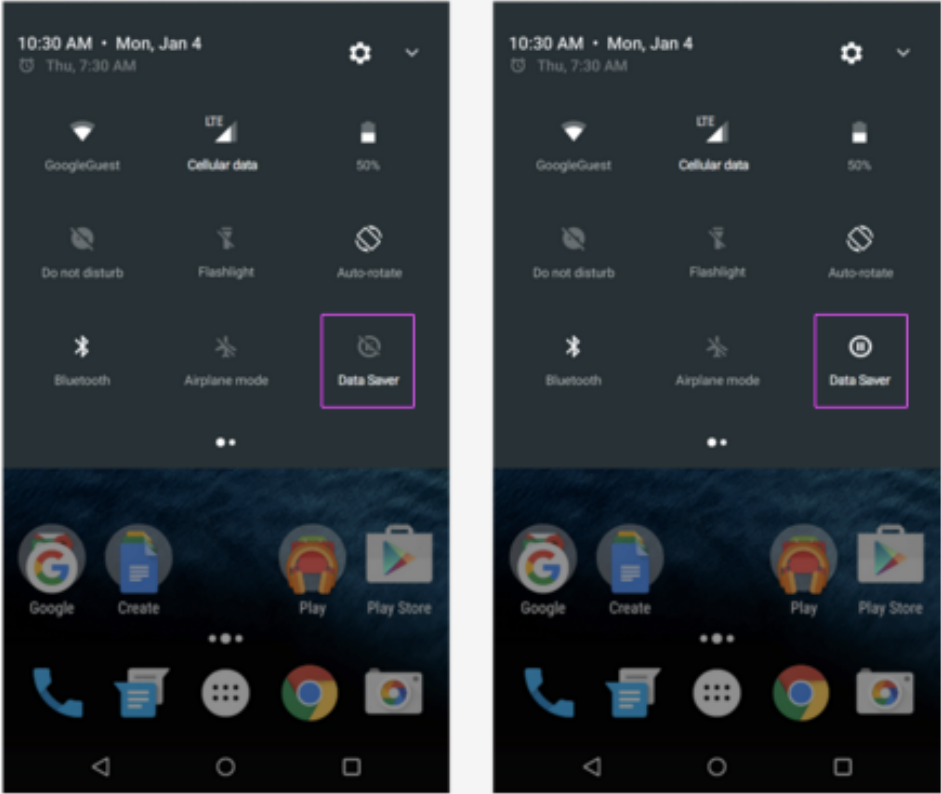
Claim	Public Documentation
<p>access condition of the first wireless network, a network busy state associated with the first wireless network, a network availability state associated with the first wireless network, a network busy state associated with a second wireless network, a network availability state associated with the second wireless network, or information about the policy.</p>	<p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 67.</p>
<p>71. The non-transitory computer-readable storage medium recited in claim 65, wherein the second information comprises a setting for assisting the first software component in restricting, allowing, blocking, throttling, deferring, time-scheduling, or queuing the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 65, wherein the second information comprises a setting for assisting the first software component in restricting, allowing, blocking, throttling, deferring, time-scheduling, or queuing the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 65.</p>
<p>72. The non-transitory computer-readable storage medium recited in claim 71, wherein the setting is based on a characteristic of the wireless network, a network busy state associated with the wireless network, a time, a service plan associated with the wireless end-user device, a classification of the service usage activity, or a combination of these.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 71, wherein the setting is based on a characteristic of the wireless network, a network busy state associated with the wireless network, a time, a service plan associated with the wireless end-user device, a classification of the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 65, and 71.</p>

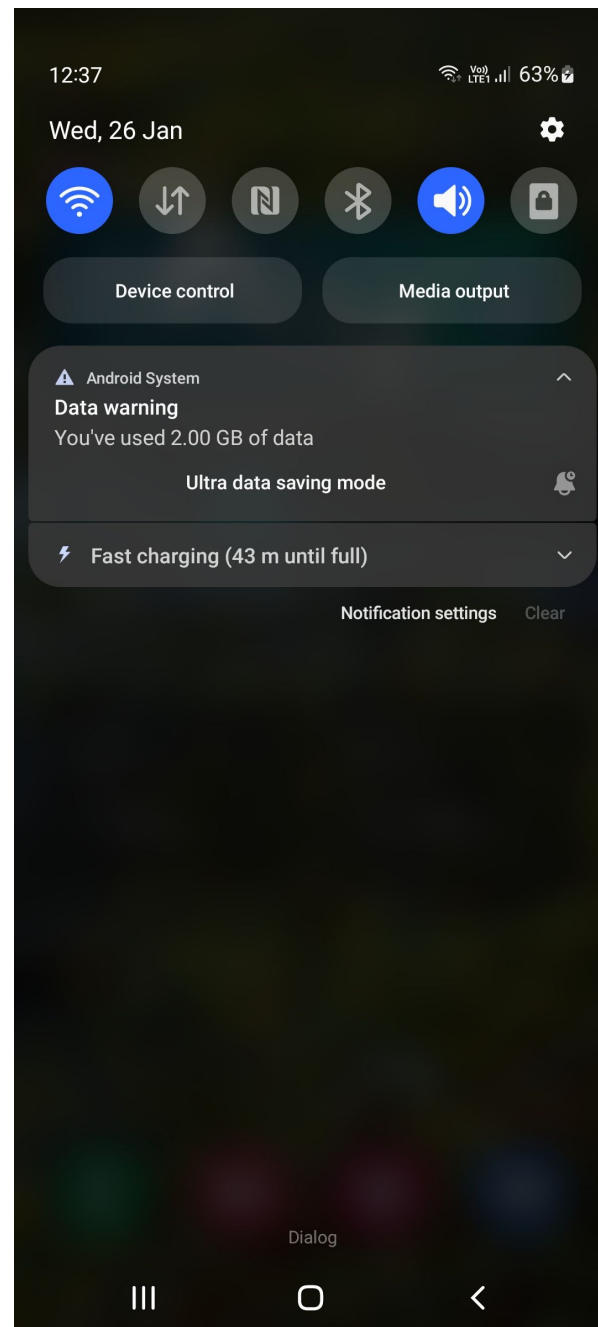
Claim	Public Documentation
73. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the first software component is allowed to access the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the first software component is allowed to access the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
74. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the wireless network is available.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component whether the wireless network is available.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
75. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component of a traffic control to be implemented or applied by the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises inform the first software component of a traffic control to be implemented or applied by the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
76. The non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises obtain second information from the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises obtain second information from the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
<p>77. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification associated with the first software component or the service usage activity, the notification for presentation through a user interface of the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification associated with the first software component or the service usage activity, the notification for presentation through a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</p> <p>As a further example, the Accused Instrumentalities cause a notification to be presented to a user. <i>See, e.g.</i>, exemplary screenshots:</p>

Claim	Public Documentation
	



Claim	Public Documentation
	



Claim	Public Documentation
	<p>; https://source.android.com/docs/core/data/data-saver; https://developer.android.com/training/basics/net-work-ops/data-saver:</p> <h3>Check data saver preferences</h3> <p>On Android 7.0 (API level 24) and higher, apps can use the <code>ConnectivityManager</code> API to determine what data usage restrictions are being applied. The <code>getRestrictBackgroundStatus()</code> method returns one of the following values:</p> <p><code>RESTRICT_BACKGROUND_STATUS_DISABLED</code></p> <p>Data Saver is disabled.</p> <p><code>RESTRICT_BACKGROUND_STATUS_ENABLED</code></p> <p>The user has enabled Data Saver for this app. Apps should make an effort to limit data usage in the foreground and gracefully handle restrictions to background data usage.</p> <p><code>RESTRICT_BACKGROUND_STATUS_WHITELISTED</code></p> <p>The user has enabled Data Saver but the app is allowed to bypass it. Apps should still make an effort to limit foreground and background data usage.</p> <p>; https://support.apple.com/en-us/HT205234:</p>

Use Low Power Mode to save battery life on your iPhone or iPad


Low Power Mode reduces the amount of power that your iPhone or iPad uses when the battery gets low.

To turn Low Power Mode on or off, go to Settings > Battery. You can also turn Low Power Mode on and off from Control Center. Go to Settings > Control Center > Customize Controls, then select Low Power Mode to add it to Control Center.

When Low Power Mode is on, your iPhone or iPad will last longer before you need to charge it, but some features might take longer to update or complete. Also, some tasks might not work until you turn off Low Power Mode, or until you charge your iPhone or iPad to 80% or higher.

Low Power Mode reduces or affects these features:

- 5G (except for video streaming) on iPhone 12 and iPhone 13 models¹
- Auto-Lock (defaults to 30 seconds)
- Display brightness
- Display refresh rate (limited up to 60 Hz) on iPhone and iPad models with ProMotion display²
- Some visual effects
- iCloud Photos (temporarily paused)
- Automatic downloads
- Email fetch
- Background app refresh

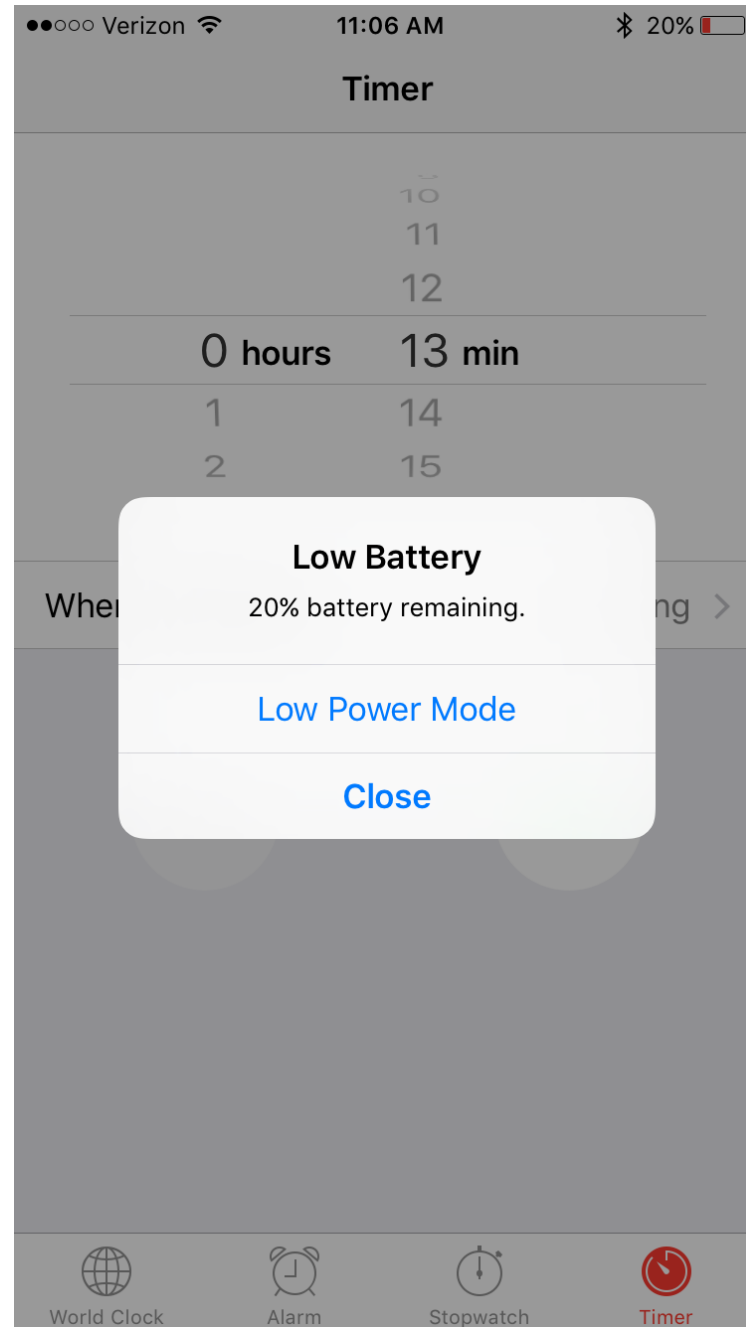
When Low Power Mode is on, the battery in the status bar will be yellow. You'll see a yellow battery icon  and the battery percentage. After you charge your iPhone or iPad to 80% or higher, Low Power Mode automatically turns off.

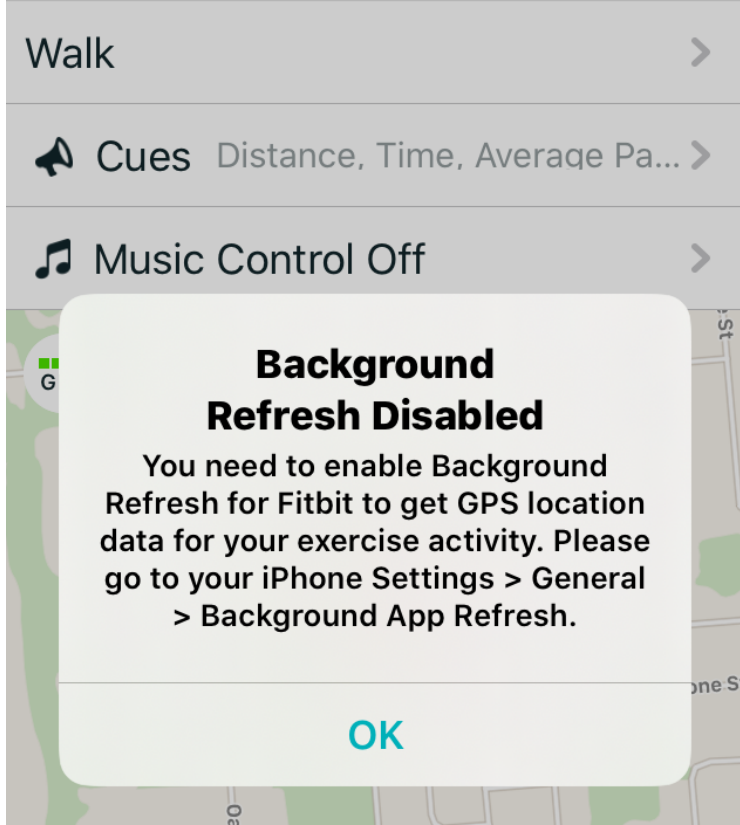


1. If you turn on Low Power Mode, 5G is disabled, except in some cases like video streaming and large downloads on iPhone 12 and iPhone 13 models. With iPhone 12 models, Low Power Mode disables 5G standalone (where available).

2. These devices have ProMotion display: iPhone 13 Pro and later, iPhone 13 Pro Max and later, iPad Pro 10.5-inch, all iPad Pro 11-inch models, and iPad Pro 12.9-inch (2nd generation) and later.

Claim	Public Documentation
	<p>; https://developer.apple.com/documentation/uikit/uiapplication/1622994-backgroundrefreshstatus:</p> <p>Instance Property</p> <h2>backgroundRefreshStatus</h2> <p>Indicates whether the app can refresh content when running in the background.</p> <div><div>iOS 7.0+</div><div>iPadOS 7.0+</div><div>Mac Catalyst 13.1+</div><div>tvOS 11.0+</div><div>visionOS 1.0+ Beta</div></div> <pre>var backgroundRefreshStatus: UIBackgroundRefreshStatus { get }</pre> <hr/> <h2>Discussion</h2> <p>You can use this property to determine whether Background App Refresh—an app's ability to open in the background to perform refresh tasks—is enabled, and warn the user if it is not. Don't warn the user if the value of this property is set to <code>UIBackgroundRefreshStatus.restricted</code>. A restricted user, such as one who is managed under parental controls, can't enable Background App Refresh.</p> <p>Background App Refresh is disabled automatically when a device is operating in low-power mode. When this happens, the time available for performing background tasks is reduced to save power.</p> <p>https://support.apple.com/en-us/HT213336; <i>see also</i> exemplary screenshots:</p>



Claim	Public Documentation
	
<p>78. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification for presentation</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, controlling, blocking, modifying, removing, or replacing a notification for presentation through a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>

Claim	Public Documentation
through a user interface of the wireless end-user device.	
79. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting a stack application programming interface (API) level or application messaging layer request.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the information from the network element is first information, and wherein apply the policy comprises obtain second information from the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
80. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in killing or suspending the service usage activity or the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in killing or suspending the service usage activity or the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, and 14.</i></p>
81. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in changing or setting a priority of the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in changing or setting a priority of the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
82. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in emulating a network application	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in emulating a network application programming interface (API) message.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
programming interface (API) message.	
83. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, modifying, blocking, removing, injecting, swapping, or replacing an application interface message.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises at least assist in intercepting, modifying, blocking, removing, injecting, swapping, or replacing an application interface message.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
84[a] The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
84[b] at least assist in preventing initiation of the service usage activity by the first software component; and	<p>The Accused Instrumentalities further comprise “at least assist in preventing initiation of the service usage activity by the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
84[c] send a message to the first software component.	<p>The Accused Instrumentalities further comprise “send a message to the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
85. The non-transitory computer-readable storage medium recited in claim 84, wherein initiation of the service usage activity by the first software component comprises opening of a connection, opening of a socket, initiating	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 84, wherein initiation of the service usage activity by the first software component comprises opening of a connection, opening of a socket, initiating transmission, initiating a data flow, or initiating a data stream.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
transmission, initiating a data flow, or initiating a data stream.	
86. The non-transitory computer-readable storage medium recited in claim 84, wherein the message comprises a reset message, an indication that the service usage activity is not allowed, or an indication that the wireless network is not available.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 84, wherein the message comprises a reset message, an indication that the service usage activity is not allowed, or an indication that the wireless network is not available.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
87[a] The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
87[b] identify a socket to be opened for the service usage activity; and	<p>The Accused Instrumentalities further “identify a socket to be opened for the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
87[c] based on a condition, block the service usage activity or terminate the socket.	<p>The Accused Instrumentalities “based on a condition, block the service usage activity or terminate the socket.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
88. The non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises: blocking a network access event or attempt associated with the first software component, modulating a	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein controlling the service usage activity comprises: blocking a network access event or attempt associated with the first software component, modulating a number of access events or attempts associated with the first software component, aggregating a plurality of access events or attempts associated with the first software component, or time-windowing the number of access events or attempts associated with the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
<p>number of access events or attempts associated with the first software component, aggregating a plurality of access events or attempts associated with the first software component, or time-windowing the number of access events or attempts associated with the first software component.</p>	
<p>89[a] The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>89[b] if it is determined that the service usage activity is not the background activity, refrain from applying the policy.</p>	<p>The Accused Instrumentalities further comprise “if it is determined that the service usage activity is not the background activity, refrain from applying the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
<p>90[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the ma-</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>

Claim	Public Documentation
chine-executable instructions further cause the one or more processors to:	
90[b] if it is determined that the service usage activity is not the background activity, apply a second policy.	<p>The Accused Instrumentalities further comprise “if it is determined that the service usage activity is not the background activity, apply a second policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, and 25.</i></p>
91. The non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises cause a notification to be presented through a user interface of the wireless end-user device.	<p>The Accused Instrumentalities further comprise “non-transitory computer-readable storage medium recited in claim 1, wherein apply the policy comprises cause a notification to be presented through a user interface of the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
92. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
93. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>

Claim	Public Documentation
<p>94. The non-transitory computer-readable storage medium recited in claim 91, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user response to the notification.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user response to the notification.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
<p>95. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides a warning or an alert.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides a warning or an alert.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
<p>96. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a service plan limit.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a service plan limit.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
<p>97. The non-transitory computer-readable storage medium recited in claim 91, wherein the first software component is at least a portion of an application, and wherein the one or more prospective or successful communications over the wireless network comprise an attempt to launch, run, or execute the application, and wherein the</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the first software component is at least a portion of an application, and wherein the one or more prospective or successful communications over the wireless network comprise an attempt to launch, run, or execute the application, and wherein the notification comprises information about the attempt to launch, run, or execute the application.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>

Claim	Public Documentation
notification comprises information about the attempt to launch, run, or execute the application.	
98. The non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempted or successful launch or execution of the first software component, and wherein the notification comprises information about the attempted or successful launch or execution of the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempted or successful launch or execution of the first software component, and wherein the notification comprises information about the attempted or successful launch or execution of the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>
99. The non-transitory computer-readable storage medium recited in claim 91, wherein the policy is based on a limit, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to determine that a data usage associated with the service usage activity is not less than the limit, and wherein cause a notification to be presented through a user interface of the wireless end-user device comprises trigger presentation of the	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the policy is based on a limit, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to determine that a data usage associated with the service usage activity is not less than the limit, and wherein cause a notification to be presented through a user interface of the wireless end-user device comprises trigger presentation of the notification based on the determination that the data usage associated with the service usage activity is not less than the limit.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</p>

Claim	Public Documentation
notification based on the determination that the data usage associated with the service usage activity is not less than the limit.	
100. The non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to download or load an application, and wherein the notification comprises information about the attempted download or load of the application.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to download or load an application, and wherein the notification comprises information about the attempted download or load of the application.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
101. The non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to initiate usage of a cloud-based service or application, and wherein the notification comprises information about the attempted initiation of usage of the cloud-based service or application.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the one or more prospective or successful communications over the wireless network comprise an attempt to initiate usage of a cloud-based service or application, and wherein the notification comprises information about the attempted initiation of usage of the cloud-based service or application.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.</i></p>
102. The non-transitory computer-readable storage medium recited	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification indicates that one or more service usage activities are subject to the policy.”</p>

Claim	Public Documentation
in claim 91, wherein the notification indicates that one or more service usage activities are subject to the policy.	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.
103. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a second network.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification provides information about a second network.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.
104. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification comprises an offer for a service plan upgrade or downgrade.	The Accused Instrumentalities comprise “-transitory computer-readable storage medium recited in claim 91, wherein the notification comprises an offer for a service plan upgrade or downgrade.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.
105. The non-transitory computer-readable storage medium recited in claim 91, wherein apply the policy further comprises obtain an indication of a user preference in response to the notification.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein apply the policy further comprises obtain an indication of a user preference in response to the notification.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.
106. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to associate the policy with a second software component.	The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to associate the policy with a second software component.” <i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.

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107. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow or block the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow or block the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</i></p>
108. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference identifies a traffic control setting associated with the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference identifies a traffic control setting associated with the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</i></p>
109. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow the service usage activity under a specified condition.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to allow the service usage activity under a specified condition.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</i></p>
110. The non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to override or modify the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 105, wherein the indication of the user preference comprises a user directive to override or modify the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 105.</i></p>
111. The non-transitory computer-readable storage medium recited in claim 91, wherein cause a notification to be presented through a	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.”</p>

Claim	Public Documentation
user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, and 91.
112. The non-transitory computer-readable storage medium recited in claim 111, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 111, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 111.</p>
113. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>
114. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>

Claim	Public Documentation
the service usage activity or the first software component.	
115. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an option to modify the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an option to modify the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
116. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
117. The non-transitory computer-readable storage medium recited in claim 91, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 91, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
118[a] The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>

Claim	Public Documentation
118[b] cause a notification to be presented through a user interface of the wireless end-user device.	<p>The Accused Instrumentalities further “cause a notification to be presented through a user interface of the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</p>
119. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</p>
120. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about an option to set, control, override, or modify the at least an aspect of the policy or a second aspect of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</p>
121. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification indicates that the service usage activity is the background activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification indicates that the service usage activity is the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</p>
122. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about a second network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification provides information about a second network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</p>

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<p>123. The non-transitory computer-readable storage medium recited in claim 118, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user preference in response to the notification.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to obtain an indication of a user preference in response to the notification.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, and 118.</i></p>
<p>124. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to associate the policy with the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to associate the policy with the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, 118, and 123.</i></p>
<p>125. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to restrict, allow, or block the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to restrict, allow, or block the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 91, 118, and 123.</i></p>
<p>126. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference identifies a traffic control setting associated with the policy.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference identifies a traffic control setting associated with the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</i></p>

Claim	Public Documentation
127. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to override or modify the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user directive to override or modify the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</p>
128. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user acknowledgment of the notification.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference comprises a user acknowledgment of the notification.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</p>
129. The non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference indicates one or more network types.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 123, wherein the indication of the user preference indicates one or more network types.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</p>
130. The non-transitory computer-readable storage medium recited in claim 129, wherein the one or more network types comprise WiFi, 4G, 3G, wireless, wired, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 129, wherein the one or more network types comprise WiFi, 4G, 3G, wireless, wired, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 123.</p>
131. The non-transitory computer-readable storage medium recited in claim 118, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein cause a notification to be presented through a user interface of the wireless end-user device comprises cause the notification to be presented based on occurrence of a trigger.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>

Claim	Public Documentation
notification to be presented based on occurrence of a trigger.	
132. The non-transitory computer-readable storage medium recited in claim 131, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 131, wherein the trigger is: a measure of the service usage activity satisfies a first condition relative to a threshold, an aspect of the service usage activity satisfies a second condition, a change to the policy, or a message from the network element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 131.</p>
133. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification enables a user associated with the wireless end-user device to obtain information about at least an aspect of the service usage activity or a service plan associated with the wireless end-user device.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
134. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents a list of service usage activities or software components, the list of service usage activities or software components including the service usage activity or the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>

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135. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a setting associated with the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a setting associated with the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
136. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
137. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents an indication of a measure of usage of the wireless network associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
138. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a network busy state or a network availability state.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a network busy state or a network availability state.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
139. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents an indication of a measure of usage of the wireless	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents an indication of a measure of usage of the wireless network associated with the first software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>

Claim	Public Documentation
network associated with the first software component.	
140. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a statistic associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification presents information about a statistic associated with the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
141. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
142. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with one or more networks, the one or more networks including the wireless network.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing service usage information associated with one or more networks, the one or more networks including the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
143. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing information associated with a service plan.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a gauge providing information associated with a service plan.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>

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144. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification is provided through an e-mail, a text message, a window, a setting, or a voice message.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
145. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a warning or an alert.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises a warning or an alert.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
146. The non-transitory computer-readable storage medium recited in claim 118, wherein the information from the network element is first information, and wherein the notification is based on second information from the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the information from the network element is first information, and wherein the notification is based on second information from the network element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
147. The non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises information about a cost or a charge associated with the service usage activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises information about a cost or a charge associated with the service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>
148. The non-transitory computer-readable storage medium recited	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 118, wherein the notification comprises information about a service sponsor.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</p>

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in claim 118, wherein the notification comprises information about a service sponsor.	
149[a] The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
149[b] detect an attempted use of the first software component; and	<p>The Accused Instrumentalities further “detect an attempted use of the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
149[c] based on the detected attempted use of the first software component, cause a notification to be presented through a user interface of the wireless end-user device.	<p>The Accused Instrumentalities “based on the detected attempted use of the first software component, cause a notification to be presented through a user interface of the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, and 118.</i></p>
150. The non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to override the policy.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to override the policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>

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<p>151. The non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information about a cost or a charge associated with the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information about a cost or a charge associated with the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>
<p>152. The non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to change or upgrade a service plan associated with the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 149, wherein the notification provides information to enable a user associated with the wireless end-user device to change or upgrade a service plan associated with the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>
<p>153. The non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of a policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input specifies a user preference associated with one or more network types.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the at least an aspect of a policy is based on the user input obtained through the user interface of the wireless end-user device, and wherein the user input specifies a user preference associated with one or more network types.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>
<p>154. The non-transitory computer-readable storage medium recited in claim 153, wherein the one or more network types comprise wireless fidelity (WiFi), home,</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 153, wherein the one or more network types comprise wireless fidelity (WiFi), home, roaming, 4G, 3G, wireless, wired, or a combination of these.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, 78, 97, 118, and 149.</i></p>

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roaming, 4G, 3G, wireless, wired, or a combination of these.	
155. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the policy is a first policy, and wherein the first user input or a second user input comprises a directive to apply a second policy to a second software component of the plurality of software components on the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the policy is a first policy, and wherein the first user input or a second user input comprises a directive to apply a second policy to a second software component of the plurality of software components on the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24-25, and 78.</i></p>
156. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the first user input or a second user input comprises a directive to refrain from applying the policy to a second software component of the plurality of software components on the wireless end-user device.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein the first user input or a second user input comprises a directive to refrain from applying the policy to a second software component of the plurality of software components on the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

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<p>157. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device comprises a directive to apply the policy to a second software component of the plurality of software components on the wireless end-user device.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device comprises a directive to apply the policy to a second software component of the plurality of software components on the wireless end-user device.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>158. The non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device specifies a user preference associated with the service usage activity or the first software component.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the user input obtained through the user interface of the wireless end-user device specifies a user preference associated with the service usage activity or the first software component.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>159. The non-transitory computer-readable storage medium recited in claim 158, wherein the user preference comprises a preference to restrict, allow, block, delay, or throttle the service usage activity.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 158, wherein the user preference comprises a preference to restrict, allow, block, delay, or throttle the service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>160[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p>

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the wireless network is a first wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<i>See</i> , for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.
160[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
160[c] refrain from applying the policy to the second service usage activity.	<p>The Accused Instrumentalities further “refrain from applying the policy to the second service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
161[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the background activity is a first background activity, and wherein	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the background activity is a first background activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

Claim	Public Documentation
<p>the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	
<p>161[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>161[c] determine whether the second service usage activity is a second background activity;</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is a second background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>161[d] if it is determined that the second service usage activity is the second background activity,</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the second background activity, apply a second policy to the second service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

Claim	Public Documentation
apply a second policy to the second service usage activity.	
162. The non-transitory computer-readable storage medium recited in claim 161, wherein the first policy restricts or prevents the first background activity, and wherein the second policy allows the second background activity.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 161, wherein the first policy restricts or prevents the first background activity, and wherein the second policy allows the second background activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
163[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the wireless network is a first wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
163[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component or with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

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of the plurality of software components on the wireless end-user device, the second service usage activity comprising one or more prospective or successful communications over a second wireless network; and	
163[c] apply a second policy to the second service usage activity.	<p>The Accused Instrumentalities further “apply a second policy to the second service usage activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
164. The non-transitory computer-readable storage medium recited in claim 163, wherein the second policy comprises a control policy, a notification policy, or an accounting policy associated with the first software component or the second software component.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 163, wherein the second policy comprises a control policy, a notification policy, or an accounting policy associated with the first software component or the second software component.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
165[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the first wireless network, and wherein the	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the first wireless network, and wherein the background activity is a first background activity, and wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

Claim	Public Documentation
<p>background activity is a first background activity, and wherein the user input obtained through the user interface of the wireless end-user device is a first user input, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	
<p>165[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>165[c] determine whether the second service usage activity is a second background activity; and</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is a second background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>165[d] if it is determined that the second service usage activity is the second background activity,</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the second background activity, apply at least a portion of the policy, wherein the at least a portion of the policy is based on a second user input.”</p>

Claim	Public Documentation
<p>apply at least a portion of the policy, wherein the at least a portion of the policy is based on a second user input.</p>	<p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>166[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
<p>166[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

Claim	Public Documentation
communications over the wireless network;	
166[c] determine whether the second service usage activity is the background activity; and	<p>The Accused Instrumentalities further “determine whether the second service usage activity is the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
166[d] if it is determined that the second service usage activity is the background activity, refrain from applying at least a portion of the policy.	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the background activity, refrain from applying at least a portion of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
167[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the background activity is a first background activity, and wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the background activity is a first background activity, and wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein the policy is a first policy, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>

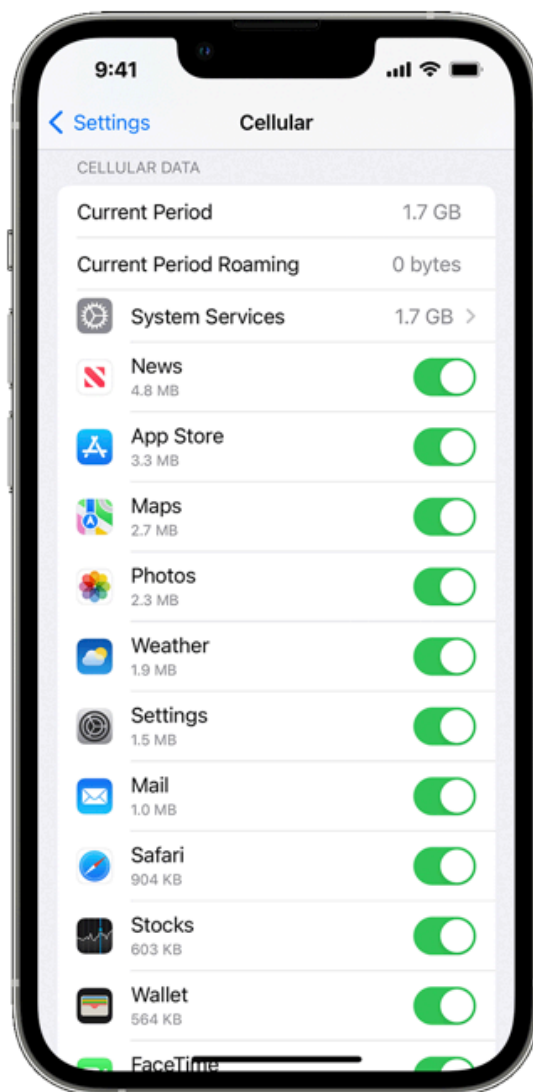
Claim	Public Documentation
<p>167[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with a second software component of the plurality of software components on the wireless end-user device, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>167[c] determine whether the second service usage activity is a second background activity;</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is a second background activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>167[d] obtain a second policy, the second policy to be applied when the second service usage activity is the second background activity, the second policy for controlling the second service usage activity; and</p>	<p>The Accused Instrumentalities further “obtain a second policy, the second policy to be applied when the second service usage activity is the second background activity, the second policy for controlling the second service usage activity.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>167[e] if it is determined that the second service usage activity is the second background activity, apply the second policy.</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the second background activity, apply the second policy.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

Claim	Public Documentation
<p>168. The non-transitory computer-readable storage medium recited in claim 167, wherein the first policy, the second policy, or both are based on a network busy state, a network availability state, or a cost associated with the wireless network.</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 167, wherein the first policy, the second policy, or both are based on a network busy state, a network availability state, or a cost associated with the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>169[a] The non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to:</p>	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the service usage activity is a first service usage activity, and wherein the one or more prospective or successful communications over the wireless network are first one or more prospective or successful communications over the wireless network, and wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>
<p>169[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity com-</p>	<p>The Accused Instrumentalities comprise “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</i></p>

Claim	Public Documentation
prising second one or more prospective or successful communications over the wireless network;	
169[c] determine whether the second service usage activity is the background activity; and	<p>The Accused Instrumentalities comprise “determine whether the second service usage activity is the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
169[d] if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.	<p>The Accused Instrumentalities comprise “if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
170. The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to monitor the service usage activity, account for the service usage activity, report information about the service usage activity, or a combination of these.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to monitor the service usage activity, account for the service usage activity, report information about the service usage activity, or a combination of these.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p> <p>As a further example, the Accused Instrumentalities monitor, account for, and/or report information about service usage activities. <i>See, e.g.</i>, https://support.apple.com/en-us/HT201299:</p>

View how much data you're using

To see how much cellular data you've used, go to Settings > Cellular or Settings > Mobile Data. If you're using an iPad, you might see Settings > Cellular Data instead.



- Scroll down to find which apps are using cellular data. If you don't want an app to use cellular data, you can turn it off for that app. When cellular data is off, apps will use only Wi-Fi for data.
- To see the cellular data usage for individual System Services, go to Settings > Cellular or Settings > Mobile Data. Then tap System Services, in the list under Cellular Data. Cellular data can't be turned on or off for individual System Services.
- You can view the data-usage statistics for an app from a current period, or view app data statistics for apps that use data when you were roaming. To reset these statistics, go to Settings > Cellular or Settings > Mobile Data, and tap Reset Statistics.
- When you're using an iPhone with Dual SIM, you can see how much cellular data you've used with your selected cellular data number.

To get the most accurate cellular data usage from a current period, contact your carrier.

Claim	Public Documentation
171. The wireless end-user device embodying the non-transitory computer-readable storage medium recited in claim 1.	<p>The Accused Instrumentalities “embody[] the non-transitory computer-readable storage medium recited in claim 1.”</p> <p><i>See</i>, for example, the disclosures identified for claim 1.</p>
172. The non-transitory computer-readable storage medium recited in claim 1, wherein the network element comprises a service controller, a server, a cloud element, or a billing element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein the network element comprises a service controller, a server, a cloud element, or a billing element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78.</p>
173. The non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to provide information about the service usage activity to the network element.	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 1, wherein, when executed by the one or more processors of the wireless end-user device, the machine-executable instructions further cause the one or more processors to provide information about the service usage activity to the network element.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, and 78. As a further example, the Accused Instrumentalities provide information about the service usage activities to the network element.</p>
174[a] The non-transitory computer-readable storage medium recited in claim 173, wherein the information about the service usage activity comprises a count of data traffic associated with the service usage activity, a transaction	<p>The Accused Instrumentalities comprise “non-transitory computer-readable storage medium recited in claim 173, wherein the information about the service usage activity comprises a count of data traffic associated with the service usage activity, a transaction count, a message count, a connection time, a connection duration, a classification of traffic, an indication that a measure of the service usage activity satisfies a condition relative to a threshold, a parameter associated with the service usage activity, an indication that the background activity is restricted, or a combination of these.”</p>

Claim	Public Documentation
<p>count, a message count, a connection time, a connection duration, a classification of traffic, an indication that a measure of the service usage activity satisfies a condition relative to a threshold, a parameter associated with the service usage activity, an indication that the background activity is restricted, or a combination of these.</p>	<p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.</p>
<p>174[b] identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network;</p>	<p>The Accused Instrumentalities further “identify a second service usage activity of the wireless end-user device, the second service usage activity being associated with the first software component, the second service usage activity comprising second one or more prospective or successful communications over the wireless network.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.</p>
<p>174[c] determine whether the second service usage activity is the background activity; and</p>	<p>The Accused Instrumentalities further “determine whether the second service usage activity is the background activity.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.</p>
<p>174[d] if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.</p>	<p>The Accused Instrumentalities “if it is determined that the second service usage activity is the background activity, apply at least a portion of the policy.”</p> <p><i>See</i>, for example, the disclosures identified for claims 1-6, 8-9, 14, 24, 25, 78, and 173.</p>

